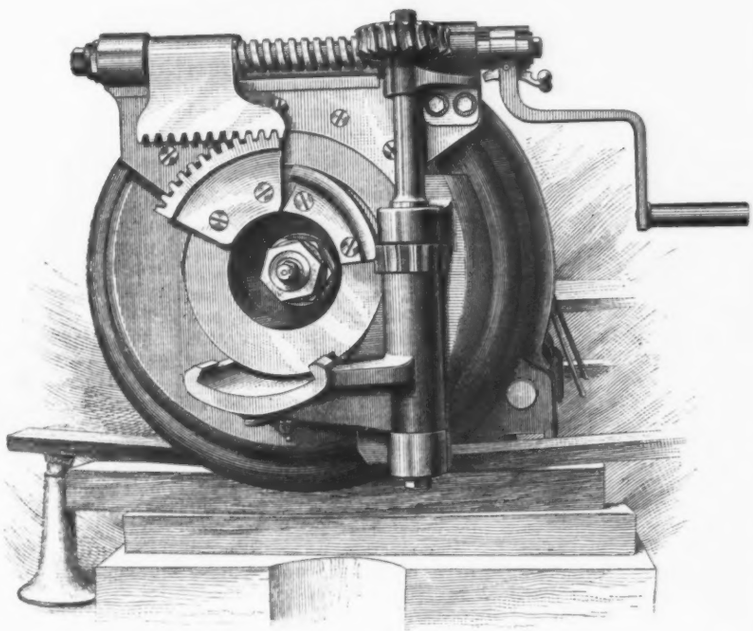
THE IRON AGE

THURSDAY, JUNE 9, 1892.

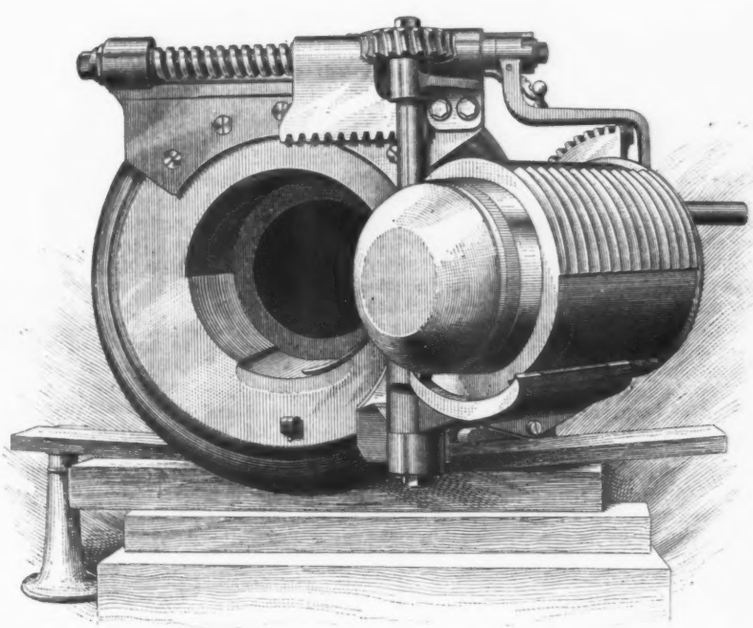
Breech Mechanism for Heavy Guns.

The accompanying cuts illustrate a type of breech mechanism for 10 and 12 inch breech-loading rifles, designed and developed in the Naval Gun Factory at the Washington Navy Yard, under the direction of the Inspector of Ordnance, Charles O'Neil. By referring to the view which represents the breech when closed it will be seen that two movements are necessary to open it—one, the partial revolution of the plug, which is accomplished by turning the crank actuating the horizontal screw. When the rack is drawn over to the right, a clutch in the crank is shifted to engage a worm shaft or sleeve which operates the worm wheel and vertical shaft seen on the right. This shaft has a gear keyed to it which is cut to match the thread of the breech plug. As it is turned the plug is withdrawn on to the tray shown in the cut. When the plug is wholly run back it automatically raises a latch which holds it to the breech of the gun and the continued movement of the crank swings both tray and plug around to the position indicated in the lower engraving. To close the breech the operations are reversed.

Another type is now being made, which dispenses with the clutch in the crank, and by means of which a continuous movement of the crank unlocks and opens the breech.



Breech Closed.



Breech Open.

BREECH MECHANISM FOR HEAVY GUNS.

There were used on the Pennsylvania Railway last year for repairs and renewals 26,583 tons of steel rails, and by the Philadelphia and Erie Railroad in repairs and construction 6276 tons of steel rails. In treating with the locomotives and car equipments the annual statements show at the close of 1890 the locomotive equipment of the Pennsylvania Railroad Company numbered 1572, and during the next year there were 52 new locomotives added, making a grand total of 1624 locomotives. The summary of car equipment on the three grand divisions totaled: Passenger equipment, 560, freight, 36,141; maintenance of way, 938; grand total, 39,639 cars. In addition, however, to the freight equipment there are in service upon the lines of the company 35,413 freight cars owned by individual and incorporated companies. During the year there were built at the shops east of Pittsburgh and Erie 177 locomotives, 89 passenger cars, 29 baggage, express and mail cars, 2220 freight cars, 6 refrigerator cars and 394 cabin and maintenance of way cars.

The Swedish Government is stated to be revising its tariff, and among the changes mooted are an increase of 10 shillings per ton in the duty on pig iron and 10 per cent. ad valorem on locomotives and machine tools.

The Greatest Dam in the World.

One of the largest engineering works of the day will be the construction by the Aqueduct Commissioners of the contemplated dam at Cortlandt, in the Croton watershed. It will tower above every other structure of its kind ever before attempted, and its top will join two hills nearly 2000 feet apart. Back of it will be a monster reservoir, where 44,000,000,000 gallons of water will be stored, and New York City will, for 50 years at least, be without fear of a water famine. The dam is to take the place of the one that the Aqueduct Commissioners proposed building on the Quaker Bridge site. The site is about 3¼ miles below the present Croton dam and 1¼ miles above the Quaker Bridge site. The general dimensions of the dam are these: Hight from rock bottom, 285 feet; from the bed of the stream, 180 feet; greatest thickness at the bottom, 215 feet; smallest thickness at the bottom, 180 feet; width at bottom, 600 feet; at top, 1800 feet. Along the top will be a roadway 50 feet wide. The dam proper will rest in a ditch quarried out of the solid rock, and it is planned to resist by sheer weight three times the pressure that it will be possible for the water to bring upon it. The top will always be from 10 to 12 feet above the surface of the water, and no water will ever flow over it. The waste is to be provided for by means of an enormous mason work spillway 1000 feet long, 6 feet wide and from 20 to 75 feet deep, capable of carrying off from three to five times as much water as there has been in any freshet in the past 50 years. The central part of the dam is to be wholly of masonry, built on the solid rock. When the dam is completed the depth of water behind it will be about 150 feet. Before the work can be commenced the city will have to purchase in the neighborhood of 5000 acres of land. That, with the changes in bridges and highways which are necessary, will cost about $4,000,000. The dam itself will cost from $3,000,000 to $4,000,000.

WORLD'S FAIR NOTES.

An Unsatisfactory Month.

May, regarded as a month, was a soggy and unsatisfactory one at Jackson Park. Although 6016 men were on the pay rolls of contractors and the exposition company, less work was done during that month than during any corresponding time since the World's Fair people took possession of the park. The sun shone but eight days, and during the remaining three weeks work was stopped almost completely on account of rain. The workmen reported for labor every morning, but would drop their tools, gather up their buckets and coats and quit the grounds when they saw the clouds roll up. Their patience was exhausted after being driven from the buildings repeatedly by rain storms.

The Mines and Mining Building has been accepted from the contractors for carpenter and iron work. With the exception of the fire-proof paint which is now being spread on the interior of the building this structure is finished. Work done by the 550 men on the Manufactures Building was hardly perceptible, and the same might be said of the progress they made during the month. In the Horticulture, Fisheries and Woman's buildings painters, plumbers and plasterers are adding the finishing touches.

The Government Building was constructed on a different plan from most of the other great edifices. The floor was laid last, when the building was practically finished. It is about down now and nearly all of the big slabs of staff that make the building look like a solid marble palace are on. A flag floating from a staff on the dome of the Illinois Building will mark the highest point on the exposition grounds. The dome is 237 feet and 8 inches high and the flagstaff 72 feet, making the total hight 309 feet 8 inches.

Landscape gardeners tramped all over the grounds in rubber boots most of the month and laid out many curiously shaped flower beds. Their work was delayed less on account of the weather than that in any other department.

Eight Workmen Killed at the Park.

Considering the number of laborers who have been employed on the World's Fair buildings the number of accidents, fatal and otherwise, has been very small. Anticipating that casualties would be numerous an emergency hospital was established on the grounds to care for workmen and visitors who might be injured. The reports to May 1 show that eight laborers have been killed by falling from the high buildings or by being struck by timbers. Of these six were instantly killed and two fatally injured. Twenty men have been seriously hurt and 298 have sustained slight injuries, making a total of 326 accidents reported to the medical and surgical bureau. This is considered a low ratio of accidents in view of the fact that over 6000 men have been working in the park at one time. Only one visitor of all the thousands who have gone to the park has been hurt.

Break in Fair Freight Rates.

Notable reductions in fair freight rates have been made by the Transcontinental Traffic Association in respect of exhibits at the World's Fair. At a meeting last Thursday afternoon the association decided to bring exhibits to the fair at half rates and return them at the same figure. This action was taken at the urgent request of the California State World's Fair Board, who have been working for months to bring the reduction about. The following lines are bound by the decision: Atchison, Topeka and Santa Fé, Northern Pacific, Southern Pacific, Union Pacific, Great Northern, Missouri Pacific, Denver and Rio Grande, Texas and Pacific, Atlantic and Pacific, Burlington and Missouri River, Canadian Pacific, Central Pacific, Chicago, Rock Island and Pacific, Colorado Midland, Galveston, Harrisburg and San Antonio, Oregon Railway and Navigation Company, Oregon Short Line, Oregon and California, Rio Grande and Western, St. Louis and San Francisco, Southern California. The roads embrace practically all the lines in California, Oregon, Washington, Idaho and Nevada. What effect this reduction of rates on exhibits will have on other traffic associations is difficult to predict. Chairman Blanchard of the Central Association announced that the lines in that association would do no better than return exhibits free. This was some time ago, after the National Commission had rejected the so-called rate scale secured by Mr. Jaycox.

The South and the Fair.

The Southern States will be well represented at the exposition, notwithstanding only a few of them have made appropriations for that purpose. Texas has already provided a fund of $225,000, and is vigorously pursuing a plan which, it is believed, will result in increasing the amount to $1,000,000. It has contracted for a $100,000 building. Kentucky has an appropriation of $100,000, and will erect a handsome building. Florida is confident of raising $200,000, and will reproduce at Chicago old Fort Marion for its headquarters. Arkansas is raising $40,000, and with apparent success, for it has contracted for the erection of an $18,000 building. In Alabama the women have undertaken to raise $10,000 or $15,000. The Legislature of Louisiana, now in session, is petitioned to appropriate $50,000. Mississippi refused to appropriate, and declined to allow counties and cities to tax themselves in order to make an exhibit. Private enterprise, however, may yet save the credit of the State at the exposition. West Virginia has an appropriation of $40,000, and will expend half of it on a building. In Tennessee county appropriations and private subscriptions are relied upon for the funds necessary for the State's representation. The North Carolina Legislature appropriated $25,000, and the State Board of Agriculture has provided about $10,000 more. An additional appropriation is hoped for, and $10,000 from subscriptions is expected for a building. Virginia has an appropriation of $25,000, and is trying to raise $50,000 by subscription. A $12,000 building will be erected. Georgia is raising $100,000, and proposes to put up a $50,000 building. Maryland has $60,000, and will spend half of it or more on a building. The Columbia Board of Trade is engaged in raising $75,000 for South Carolina's representation, and the next Legislature will be asked to appropriate a like amount. Thus the South is planning to spend about $2,000,000 upon its representation at the great fair. Reports indicate that in nearly all of these States the work of collecting and preparing exhibits is progressing satisfactorily, and that among the people the interest in the exposition is universal.

Assignment of Space.

Perhaps the most important work that now confronts the department chiefs is the assignment of space to exhibitors. With all the applications before them, a careful study will be made of the floor plans, and then space for exhibitors will be marked off. Director-General Davis has issued an order that no applications for space will be received after July 1. From that date until after the October ceremonies the chiefs will struggle with the problem of getting floor room for double the number of exhibits the buildings can accommodate. They have been wrestling with it for several months. All of the buildings are already inadequate to the demands made upon them, and exhibitors, forgetting that double the space afforded at any previous exhibition has been provided, are grumbling because they are unable to get all the room they want. From October until May 1 the buildings will be in the hands of the exhibitors, seven months being allowed to put the displays in position and make ready for the grand opening May 1, 1893.

Miscellaneous News.

Chairman Durborow is now having a careful calculation made on the appropriations which will be necessary to meet the expenses of the various Government boards connected with the fair, and hopes to be able to lay the exact figures before the committee at its next meeting. He is not in special haste to get the World's Fair bill before the House until after the Democratic convention at Chicago, because he hopes that the view then obtained by Democratic representatives of the progress being made on the fair will get votes for the bill.

The State boards must have their houses finished by a certain time and lay out the grounds under the supervision of Director-General Davis and Chief Burnham. Exhibits sold in the buildings cannot be removed until the fair closes. Police and other regulations imposed by the Exposition Company will extend to these buildings, which must be removed immediately after the fair closes. If the State boards do not tear the buildings down Chief Burnham is authorized to remove them.

Chief Skiff of the Mines and Mining Department has received a number of valuable books on ancient and modern processes of mining, &c., which will form a nucleus of an extensive mining library to be a part of the mining exhibit at the fair. A special room for these volumes will be provided in charge of a competent librarian, and visitors to the exposition interested in mineral matters will have the opportunity to refer to special books difficult to obtain. This library will also contain all mining periodicals and papers.

George Westinghouse, Jr., has signed the contract for putting in the incandescent electric light plant at the fair. He is still trying to get the bond reduced to $500,000.

Not many persons think of Montana as the third largest State in the Union. Only Texas and California have greater area. But Montana will be considered of more consequence in the sisterhood when some of her big irrigation plans are put in operation. Montana has between 20,000,000 and 25,000,000 acres of arable land. A larger proportion of that State can be brought under irrigation than any other part of the arid region; such is the conclusion of the irrigation inquiry conducted under the direction of the Department of Agriculture. The rivers are large and many. Numerous mountain lakes afford the basis of a great reservoir system. Great open valleys and far reaching plains await the coming of the ditch builder. In the valley of the Yellowstone the land which can be reclaimed is estimated at 765,000 acres.

Aaron Vanderbilt, vice-president of the Naval Reserve Association, in a lecture delivered in Brooklyn last week on the subject of "The Ocean Steamship," stated that now there are 30 regular lines of passenger and freight steamers between the United States and Europe and that $250,000,000 is expended annually for passage and freight.

Intercepting Valve for Compound Engines.

The intercepting valve for compound engines here illustrated was designed by F. W. Dean of 53 State street, Boston, Mass. It has been in use for some months on an engine on the Old Colony Railroad and one on the Lehigh Valley, the result being a saving of some 30 per cent. of coal. To the upper side of the casing A is firmly bolted the secondary casing B, provided with the inner pendent tubular hub B′, which extends into the chamber of the lower casing and is bored out to form a cylinder having two different diameters, the upper portion being the larger. The upper end of the cylinder is closed by a cap, connected with which is the pipe D, the upper part of which is curved and threaded to receive the end of a pipe leading from the interior of the converting valve D^2, as shown in Fig. 2.

The interior of the casing A is formed with a valve seat for the valve E, which is provided with a tubular stem whose outer surface closely fits the smaller bore of the hub B′. The bore of the stem is fitted to form a steam-tight bearing on the tube D, and it extends through the valve, but of somewhat enlarged diameter, and is threaded to receive a plug the upper end of which is somewhat removed from the lower end of the tube D when the valve is raised to its highest position, as shown in Fig. 1. On the upper end of the tubular valve stem is screwed a sleeve like piston, formed with two grooves to receive metal packing rings; the stem is also provided with a pair of packing rings to work in the lower portion of the cylinder B′, and has cut through it just below the packing rings several rectangular or flat-bottomed radial openings, so located relative to the seating face of the valve and the lower end of the pendent tube D that the openings will not begin to be uncovered by passing below the lower end of the tube until the valve has descended nearly to its seat and its outer periphery is partially inclosed by the annular raised rib. Surrounding the valve seat, suitable packing rings make a steam-tight joint between the tube D and the valve stem.

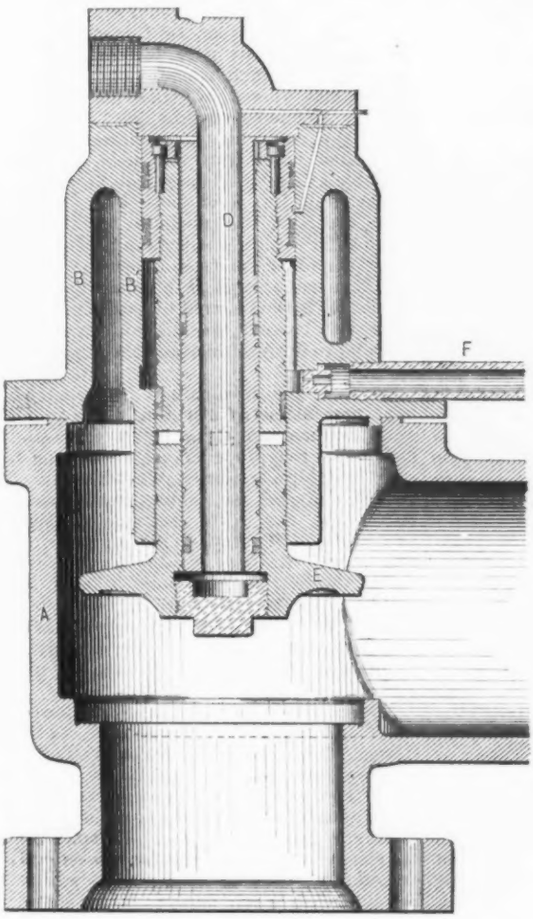


Fig. 1.—Central Vertical Section, Enlarged.

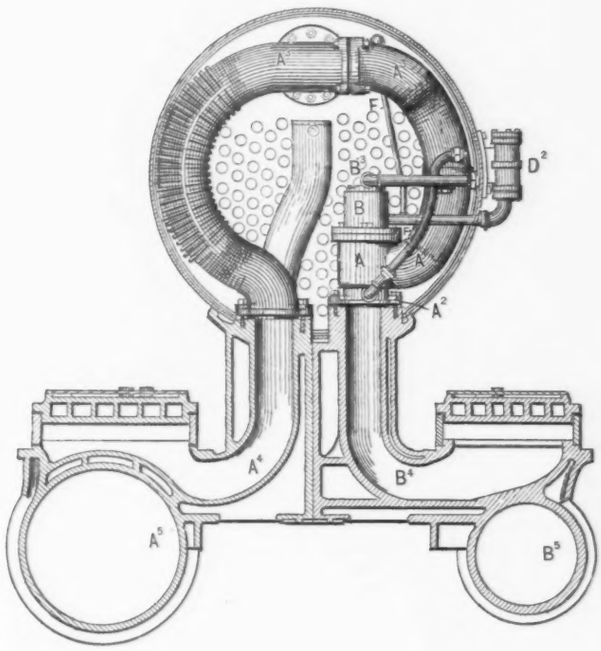


Fig. 2.—Transverse Vertical Section through Smoke Box.

INTERCEPTING VALVE FOR COMPOUND ENGINES.

Live steam direct from the boiler is admitted through the pipe F, the upper end of which communicates through the tube sheet with the steam space of the boiler, as shown in Fig. 2; but instead of the steam having free access to the chamber through an opening of the size of the pipe, the steam is wire drawn through a very small hole in a plug or bushing, as shown in Fig 1.

The tube D has drilled through it, just below its junction with the cap, a small hole, through which steam may pass from the interior of the tube to the chamber above the piston to aid in forcing the valve to its seat.

The casing B has formed in its upper part a small vent hole, the lower end of which opens into a groove in the piston when in its highest position, and its upper end communicates with the annular chamber formed in the upper packing face of the casing B. The cap is also provided with a vent hole extending from the under side of its flange or its packing face to the interior of the steam passage through the cap and tube, as shown in Fig. 1, whereby any steam leaking from the chamber and passing the lower packing rings into the groove can escape into the tube D, instead of finding its way past the upper packing rings into the chamber above the piston.

The area of the annular lower end of the piston in the upper chamber B′ is approximately equal to the area of the lower end of the pipe D, so that the pressure of steam in the chamber will nearly counterbalance the pressure of steam in the pipe tending to move the valve downward, and so maintain the valve in its elevated position until steam enough has passed through the small opening in the upper part of the pipe D into the chamber above the piston to overcome the upward pressure in the chamber. The valve then moves downward as fast as the steam can pass through the opening until it has nearly reached its seat, when the openings in the valve stem will permit, the escape of steam from the pipe D into the chamber A, and the valve will seat without jar.

By admitting the live steam from the boiler to the chamber through the small orifice in the bushing of the pipe F, the upward movement of the valve E, which is started promptly by the steam in the chamber, which is substantially at boiler pressure in its continued upward movement, will be somewhat retarded by the restricted supply of steam which can pass through the orifice, and as some steam will remain in the chamber above the piston, which can escape only as fast as it is forced through the orifice into the pipe D, the upward movement of the valve will be arrested without slam or jar.

The construction shown and described insures the opening of the valve E before the pressure of exhaust steam in the high-pressure exhaust passage accumulates above the receiver pressure, and thus relieves the high-pressure piston of the early back pressure, as the valve being acted upon by the steam in the chamber at substantially boiler pressure, is made to open promptly, when the converting valve is

closed and a passage is opened from the interior of the tube D to the atmosphere, and is also opened in advance of an accumulated back pressure on the high pressure piston.

The cap is connected by a pipe with the converting valve, and as a consequence it follows that when the converting valve is closed the steam in the tube D is free to escape into the open air, and as the converting valve is closed as soon as the high-pressure cylinder begins to exhaust it follows that before the pressure of the exhaust can accumulate above receiver pressure the pressure above the valve E will have been relieved and the pressure in the chamber will have commenced to raise the valve E to open communication to the receiver.

Submarine Boats.

George C. Baker has recently put afloat in the Detroit River a submarine torpedo boat which promises so well that Captain Folger of the Ordnance Bureau of the Navy has been on to inspect the working of the craft, and it is expected that the forthcoming annual of the Office of Naval Intelligence will publish an illustrated and detailed account of it.

This Detroit boat recently experimented with is 40 feet over all, 9 feet beam and 14 feet deep, built of 3 inch oak planks so laid on as to form a spheroidal hull. The cross sections of the boat are ellipses, the longitudinal sections are parabolic. On top there is a small conning tower which allows ingress and egress, and also is fitted with deadlights, so that the helmsman can look out.

The boat is driven by a steam plant and an electric plant, the former being used for surface propulsion, the latter for underwater work.

The steam plant is peculiar in having a smoke stack which can be telescoped and the stack hole covered when not needed. The electric plant consists of an exceptionally large storage battery working a 50 horse-power motor.

The Detroit boat has been under water nearly three hours, during which time the two men in her suffered no inconvenience. Experiments are to be further extended for the purpose of ascertaining her speed and maneuvering powers both at the surface of the water and beneath it, and the practicability of firing from her in either position an automobile torpedo of the Whitehead or the Howell type.

A submarine torpedo boat, it must be borne in mind, is not always intended to do its work below the surface of the water; the property of submergence is only to be made use of under exceptional circumstances.

It may be not uninteresting to give some brief information concerning the progress, development and importance of submarine boats.

The idea of a submersible boat for war purposes has been before the world for over 200 years, and during this long period of time almost every conceivable method of submersion and propulsion has been tried. The earliest detailed attempt recorded is that of Cornelius Debbrel, who in 1624, during the reign of James I of England, constructed a submarine boat to carry 12 rowers. He claimed to have discovered a liquid which would destroy impure air and supply the good air needed for breathing. Nothing ever came of Debbrel's efforts, as he died before perfecting them.

From this time until within the last hundred years little progress was made in subaqueous boat building. Instead, attention was diverted to the inventing and perfecting of the diving bell and that instrument was brought into successful use.

In 1776 a young man named David Bushnell of Yale College constructed the first submarine boat designed for attacking a vessel under water. This boat was used in an attempt to blow up the English man-of-war Eagle, and failed because of mismanagement. It was not a comfortable craft. In appearance it resembled two turtle backs screwed together and was so small that only one man, who had air enough to last him 30 minutes, could occupy it. This man had to work by hand the screw which propelled the boat, to pump in and out water for descending to desired depths, and to let go 200 pounds of ballast to rise rapidly to the surface. The explosive mine, containing 150 pounds of powder, was designed to be attached to the bottom of the enemy's wooden ship, after which a clock-work arrangement, set by the operator, was to ignite the charge. Nothing practical ever resulted, though it is universally conceded that Bushnell's boat contained the germs of nearly all the subsequent attempts to make efficient submarine boats.

The next noteworthy attempts were made by Robert Fulton about the year 1800. He took the essential features of his boat from Bushnell, but made her larger, adding reservoirs containing compressed air which enabled him to remain longer under water. One of Fulton's boats, the Nautilus, made a speed under water of about 2 knots, and the longest time she ever remained submerged was four hours. With this craft Fulton was successful in blowing up a small vessel in the harbor of Brest, France, by attaching to her bottom a torpedo of 20 pounds of powder. But he failed of his purpose when he made an attempt upon an English man-of-war, because the ship moved away and the Nautilus could not find her.

Fulton was succeeded by numerous inventors in nearly every civilized country, and though each met with more or less success nothing very practical resulted.

In the civil war between the North and the South a quarter of a century ago, the attention of both sides was drawn to submarine boats, and several futile efforts resulted. However, the Confederates constructed a cigar shaped craft 35 feet long, 3 feet beam and 5 feet deep, known as a David. Nine men constituted the crew, eight working the propeller and one steering. Two side rudders were used for sinking and raising the boat when in motion. The boat was also sunk and raised by taking in and pumping out water. In February, 1864, this craft with a spar torpedo sticking from her snout went down the river, her small conning tower just clear of the water. She succeeded in sinking the Union corvette Housatonic, but was herself with all hands totally lost.

After the close of our war the inventors of submarine boats interested foreign governments in the matter of submerged navigation, and notably was this the case in Russia, where, perhaps, more was done toward developing such craft than anywhere else. Large sums of money were expended and many trials made, though nothing very satisfactory resulted. In other countries something was attempted, but no successes are recorded.

The idea seems throughout to have been admitted that submarine boats, if successful, would become most valuable and comparatively inexpensive weapons for harbor defense; but, generally speaking, naval officers have distrusted them, undoubtedly for the very good reason that their complicated machinery, and what it will do, are decidedly uncertain factors up to the present. Successful proof of the safety of the submarine boat will dispel all idle fancies, for there can be no doubt as to the great war value of such an instrument of destruction.

Passing over many attempts, some of which showed much ingenuity and gave fair promises, the Tuck, the Goubet, the Nautilus and the Nordenfeldt call for a few words.

Tuck, designed by J. S. Tuck of the United States, is an iron cigar-shaped boat of 30 feet in length by 6 feet in diameter. The motive power is supplied by a 14 horse-power Westinghouse engine, with the steam stored up in soda condenser reservoirs. A speed of 8 knots is said to have been made.

The Goubet, a French boat, is built of iron 16 feet long, 3 feet 3½ inches beam, and about 6 feet deep. The boat is propelled by a Simens motor, the current being supplied by storage batteries. This Goubet has been greatly improved upon; as now constructed its length is 18 feet, its breadth 5 feet. Oxygen is supplied for breathing. Last year, 1891, many interesting experiments were made with this boat, and a French commission of naval officers was ordered to report on her efficiency. While commending her, they yet found she could not be sufficiently well controlled under water to make her acceptable as a submarine torpedo boat.

The Nautilus, a 60 foot boat, differs from others of the submarine type in the manner in which submersion is effected. Four cylinders are fitted on each side, so that they can be worked in pairs; the displacement is thus altered by pushing these pairs out beyond the side to increase or drawing in flush to decrease the displacement.

In 1883 the Nordenfeldt submersible boat first attracted attention. The principal features are steam propulsion, submersion by two propellers placed in sponsons amidships, armament Whitehead torpedoes, and good coal endurance. These boats have met with greater favor than any others. Turkey, Greece and one or two other third-rate powers have purchased them. A great point in favor of Nordenfeldts is their size, the latest pattern of boat being 125 feet long and 160 tons displacement. In fact, she is a regular torpedo boat, so fitted that she can go down out of sight when needed.

Nordenfeldt the inventor of his boats advocates length and size and the use of steam. When he shuts off his smokestacks to go under water he makes use of the latent steam to drive him along, and has found that he could go 14 knots before requiring to open up the boat. In spite of the successes of the boats there is a serious objection to steam under water. Its power is too limited, is too dangerous and is too uncertain.

We come now in closing this sketch to a hasty consideration of the Gymnote, a French submarine torpedo boat that gives better promises than any other. The shape is that of a Whitehead torpedo. Length, 59 feet; diameter, 6 feet; displacement, 130 tons. The boat is steered, propelled and lighted by electricity. The motor is of 60 horse-power, driven by a battery of nearly 600 alkaline accumulators. So satisfactory were her trials that a new boat 131 feet long and 250 tons displacement has been constructed and will be put to the test the coming winter.

Thus far in the development of the submarine boat the Gymnote has done much the best work on record, though her speed is not sufficiently fast to make her quite satisfactory. From experiences gained in her trials it was decided that the succeeding boats built on her lines should be larger. Without, therefore, in any way disparaging the Baker boat perfecting at Detroit, the opinion is hazarded that a larger size would produce better results. The Baker boat is but 40 feet long to the Gymnote's 60 feet and the improved Gymnote's 131 feet. In tonnage of displacement the figures are: Baker, 75 tons; Gymnote, 130 tons, and improved Gymnote, 250 tons.

That submarine navigation is but a question of a year or two longer is indis-

putable, and that such a means of progression will prove of incalculable benefit toward making a harbor unsafe for an enemy goes without further saying.

So much has been already accomplished and the uses of electricity and electric machinery are becoming so thoroughly understood that a brilliant field for the inventive genius lies close at hand. Possibly Mr. Baker has secured the prize, possibly the new French boat, and possibly the submarine boat remains yet in the minds and hands of the great unknown. But the boat must come and come quickly.

The Howard Non-Corrosive Metals.

These are new metals which began to be placed on the market a little more than a year ago, and which are rapidly coming into general use for a variety of purposes. The silver metal, as described by the manufacturers, is a beautiful white metal, capable of taking and retaining a very high polish. In strength, they claim, this metal stands ahead of the best gun metal, the tensile strength of castings in green sand being 50,000 pounds to the square inch. Cast in iron molds and rolled it shows a strength of from 95,000 to 98,000 pounds to the square inch. The metal is readily worked in the lathe, and can be turned easier than bronze or German silver, but is tougher than brass. It can be easily brazed or soldered, and is well adapted for rolling and drawing.

Its non corrosive qualities are remarkable, as, according to tests by the makers, it rivals the noble metals in its resistance to tarnish and corrosion. The atmosphere and sea water have very little effect upon it, and whatever dirt or discoloration appears on the surface is easily washed off with a damp cloth. The metal will not smut, it is claimed, and will not discolor hands or gloves as brass will, and besides never shows any corrosion.

The gold metal, while its strength and non-corrosive qualities are not quite equal to the white metal, has an 18 karat gold color, and resists corrosion as well as six or eight karat gold.

It is easy to see how these metals, combining remarkable strength and cheapness with their non corrosive qualities, can be applied to a very large variety of uses. One of the first to suggest itself was the manufacture of horse bits, for which the metal has taken a decided hold. Its strength, non-corrosive qualities and beauty of finish make it a formidable competitor of steel for first-class goods in this line.

In yacht work the metal has another field, which it has begun to occupy, as the manufacturers report that it takes but one-tenth the labor in cleaning, and there is no rust or corrosion to eat or discolor sails or wood work, while its strength can be depended upon under all conditions. In the line of house hardware, in plumbing work and wherever ornamental metal trimmings are required its uses are apparent. Besides the qualities and uses enumerated, the metal is very smooth, and makes journal bearings which are far superior to bronze. Cheap grades are being used for boxes, and are giving the best satisfaction. In addition to the manufacture of the Howard non-corrosive metals, the company make Babbitt metals of very high grade.

The Pope's Island Mfg. Corporation of New Bedford, Mass., are sole manufactures of these metals, and make them into all kinds of castings, as well as a variety of finished goods. The company were incorporated about a year ago under the laws of the State of Massachusetts, and the pressure of business has become so great in this time that they are about to increase their capital and make very large additions to their plant.

A Great Railroad Transformation.

One of the most interesting incidents of recent years in the realm of railroad engineering has just occurred in the transformation of the Great Western Railway of England from broad to standard gauge. This line, originally constructed from London to Bristol, and afterward extended to Plymouth, Penzance and other points, was designed and constructed by the famous engineer Brunel, the author of the Thames tunnel, the Great Eastern steamship and other colossal works, and son of the designer of the old Bowery Theater in New York. He made it, equally with them, on a gigantic scale. It was in the early days of railroading, and much uncertainty existed as to the best gauge of track-laying. Many experiments had been tried, and lines had been built of many varying gauges, from 3 feet upward. Brunel's opinions on the subject were positive, and he unhesitatingly laid the rails of the Great Western at the extraordinary distance of 7 feet apart. This was by far the widest gauge ever employed for ordinary railroad work. Brunel's idea was, of course, to give his trains greater stability, and, by the employment of larger and heavier engines and cars, to obtain greater speed and carrying capacity.

Like others of his remarkable achievements, however, this work did not meet in practice the expectations he had formed of it in theory. Instead of following his example, other roads were built of what is now called standard gauge—4 feet 7 inches. On these the trains were found to be as safe and stable as on the Great Western, to attain as high a rate of speed and practically to possess as great a carrying capacity, while the cost of construction and operation was much less. Nevertheless the gauge of the Great Western has remained unchanged until the past month, a remarkable relic of early ideas in engineering.

Some years ago it was seen that it would be to the advantage of the company to conform to the standard gauge which had been adopted on every other road in England. Accordingly, on that portion of the line from London to Exeter a mixed gauge was established; that is to say, a third rail was placed between the two regular rails so that a standard-gauge train might be run over the line. Thereafter, as far as Exeter, some broad-gauge and some standard-gauge trains were run, and it was possible for the engines and cars of any other road to be run over the line to that point. Beyond Exeter, however, the road remained broad gauge, with the exception of a short space of line between Truro and Penzance and some short branches built in recent years. All through trains necessarily remained broad gauge, and indeed the bulk of the rolling stock has been of that type down to the present time.

To make the actual change of gauge, both in the tracks and in the rolling stock, was a stupendous job. There are about 200 miles of road and 300 miles of track. It is one of the greatest lines in England, with numerous trains and heavy traffic, which could not be suspended or interrupted for any considerable time. Most of the stations and the switches and sidings had to be reconstructed also. Preparations for the conversion began a long time ago. The alterations in the stations, sidings, &c., at Taunton and Newton Abbot alone cost in each place $250,000, from which the great expense of the entire undertaking may be perceived. Wherever the road was built on the cross-tie system, as on American roads, a third rail was put down, as had already been done from London to Exeter. But a considerable proportion of the road was built on the longitudinal sleeper system, the rails being spiked to huge timbers running in the same direction. On this part of the road the change of gauge was a more difficult task. The crossbars binding together the longitudinal timbers were partly cut and a trench was dug at the point where the new rail must be laid. Then when the change was actually made, the old rail and the timber to which it was spiked was taken up and relaid in this trench. The date selected for the beginning of the work was Friday, May 20. On that day the last broad-gauge train was run through from London to Penzance. On Saturday and Sunday the entire system beyond Exeter was closed to traffic, the mail trains being run by special arrangement from Exeter to Plymouth over the lines of the Southwestern Railway on Saturday and Sunday.

Before sunrise on Saturday, May 21, 5000 men, distributed along the line, simultaneously began to work. One thousand of them were regular employes on the road in the sections where the work was to be done. The others were brought from other parts of the Great Western system, from London, Chester, Birmingham, Wooster and elsewhere. Eight special trains carried them from different parts of England to Exeter on Thursday, and on Friday they were scattered by the last of the broad-gauge trains all along the road from Exeter to Falmouth. They were sent down in gangs of 60 and housed in the stations, freight sheds and tents. They were required to provide their own food, but the company supplied them with unlimited quantities of oatmeal and water for drink. From before sunrise on Saturday morning to the hour of darkness that evening they were hard at work. On Sunday morning they were at it again, and before dark Sunday evening everything was done. Every yard of the entire line was transformed to standard gauge, all the sidings and switchings and stations and platforms were adjusted, and on Monday morning the full service of trains began running again just as usual, only on a standard gauge. Before Tuesday night all the men were back at their homes.

So much for the tracks. The conversion of the rolling stock was, or is, a different and more difficult task. A sufficient supply of new standard gauge stock was procured in advance for the operations of the line. At Swindon 25 miles of broad-gauge sidings were specially constructed to hold the old rolling stock, which comprised nearly 4000 cars and engines. All this old rolling stock was made up as rapidly as possible in special trains, which were sent in almost constant procession on Wednesday, Thursday and Friday to the sidings at Swindon. Many of the cars and engines had to be kept in use until a late hour, and could only be set free and hurried away to Swindon on Friday evening. The last broad-gauge train run over the line consisted of the last remaining empty cars. It left Penzance a few minutes after 9 o'clock on Friday evening and passed through Exeter early Saturday morning. It carried one of the inspectors of the road, who notified each station as he passed it that the line was clear of all broad-gauge stock and that operations toward changing the gauge might be begun at once. Preparations for starting the narrow-gauge traffic from the western end of the line had also been made by conveying to Penzance a sufficient amount of narrow-gauge rolling stock. This was simply loaded upon broad-gauge platform cars and carried down there as so much freight. As fast as the broad-gauge trains were run upon the sidings at Swindon workmen began converting them to narrow gauge, and within a few weeks all the rolling stock that is worth keeping longer in use will be thus changed.

This is the largest gauge-changing work ever accomplished in England, and the expense of it has been enormous, probably

between $5,000,000 and $6,000,000. All the roads of importance in England and Scotland now conform to the standard gauge.

Advantages of the Nicaragua Canal.

A convention to promote the Nicaragua Canal enterprise, held in St. Louis last week, was attended by numerous delegates from various States. One of the prime movers in the enterprise, Judge M. M. Estee, said:

"We are going to have the biggest locks ever made. There will be only six of them, and a ship can go through a lock and be raised from one level to another in 45 minutes, and, supposing only one ship went through at a time, we could thus put 37 ships through in a day and 11,000 in a year. If the ships that go through this canal should be of the same size as those which pass through the Suez Canal, more than 20,000,000 tons will pass through in a year. A ship can go through our canal, a distance of 170 miles, in 28 hours, and it takes one 24 hours to go through the Suez Canal. Ships will go into the harbor at Greytown and will sail 9 miles along the canal to the first lock, which will lift them up 31 feet, and along this level they will sail 1¼ miles, where they are raised 30 feet more, and sail now on a level of 61 feet above the sea. After a few more miles there is a third lock, which raises them 45 feet higher, and now they are 106 feet above the harbor at Greytown and are on the same level of the San Juan River and the big Lake of Nicaragua. They can then sail right along up this river into the lake and cross it, a distance of over 130 miles, to the western side of the lake, and they are then only 17 miles from the Pacific Ocean. They here go into our canal again, and by similar locks to those on the east drop down to the sea level. There are three locks on the west side, and, of course, we can raise ships from the Pacific to the level of the lake in the same way as we do those to the level of the lake from the Atlantic. Our canal will have a bed wider than that of the Suez Canal, and its bottom will be 80 feet wide at the narrowest point. Its top will vary from 80 to 288 feet, and the bed of the Suez Canal is only 72 feet. We have only 27 miles of solid excavation to make, and there are only 70 miles along the whole route where we have to change the channel from what it is now. We have fully 100 miles of free navigation where we will not have to do a stroke of work, and we can widen the canal to 100 feet without very great cost. When that canal is completed New York will be 7000 miles nearer Callao, and we will be able to put our cotton into the ports of China and Japan by shipping it direct from New Orleans, instead of sending it around by the Suez, as we do now.

One Hundred Miles an Hour.

The railroad of the future, as described in a lecture before the New York Electric Club by Dr. Wellington Adams, the engineer, entirely eclipses anything now extant. A train of cars is promised that will go from St. Louis to Chicago at the rate of 100 miles an hour over a route in an air line, which has already been surveyed and the right of way principally secured. The measured distance is 282 miles. The motive power will be electricity, applied by the trolley system. "The car will weigh only 15 tons, and will carry 40 passengers. Every car will be a motor car and passenger coach combined. The passenger compartment will be in the middle section of the car. The forward end of the car will have the shape of a half cone, and will come down to a point near the ground and between the center of the tracks. The motor man will stand in the front compartment. There will be a pilot wheel on each side of the car at the front and rear, and a driving wheel 6 feet in diameter at the front and rear. The shape of the front of the car is calculated to decrease the atmospheric resistance, and it will also serve as a cowcatcher. At the rear of the car will be a compartment for mail and baggage. On each driving wheel will be a motor weighing 6132 pounds, and capable of 200 horse power at a speed of 500 revolutions of the wheel per minute." A continuous overlapping rail will be used, with all crossings overhead. The expenditure contemplated is $6,000,000. Engineers are very skeptical as to the whole scheme.

Portable Hydraulic Riveter.

The main body of this riveter and cylinder are made of steel and cast in one piece and carry the lower die for holding or forming one head of the rivet. The second or upper die is carried in a steel arm that is journaled at one end in such

Portable Hydraulic Riveter.

a manner that the die surfaces will be parallel to each other when forming the rivet. The cylinder is set back and at an angle to the center line of dies. This exposes the parts holding the dies the greatest amount possible, and admits of riveting a great variety of work. This plan also presses the arm down almost in a straight line and prevents any side pressure on the piston. The valves are so constructed that they will guide the water under pressure to the top of the piston and force the piston down. When reversing the valve lever the water from the top of the piston will be discharged, and the pressure applied underneath the piston, the piston will rise and the water above the piston will be at the same time discharged. The machine is swiveled at the back and revolved with a worm wheel for bringing the riveter in the different positions required. The main arm is also made of steel and is also swiveled at the top in such shape as to leave the upper parts exposed for forming one of the universal joints for pipe connections. The riveter is connected by means of pipes and universal joints, for the purpose of moving it about in any direction or position. The universal joints consist of two stuffing boxes, in which revolve pipes with collars, one collar being seated in the gland so as to prevent the pipe from being pushed out by the water pressure on the end of the pipe. These universal joints are easily packed and oil can be applied on all wearing surfaces. This riveter is constructed entirely of steel and bronze, and is especially designed for use in riveting heavy plates where it is not convenient to transfer such heavy work to a stationary machine. In shops where hydraulic plants are already installed, the same power can be used for operating this machine.

It is manufactured by Wickes Bros. of Saginaw, Mich.

The Chapin Iron Mine.

The following news telegram, says the Cleveland *Leader* of the 2d inst., was received yesterday from Milwaukee: "For a consideration of $3,000,000 Ferdinand and William Schlesinger of this city today concluded the purchase, from William K. Vanderbilt of New York and M. A. Hanna of Cleveland, of the Chapin Iron Mine, near Iron Mountain, Mich., and the Menominee Transit Line, which includes six steamers engaged in the ore trade between Escanaba and Lake Erie ports. The Schlesingers were forced to dispose of the Chapin Mine and other properties to Vanderbilt and Hanna last year because of the stringency of the money market, and are now obliged to pay a big bonus to get them back."

President L. C. Hanna of the Menominee Transit Company stated yesterday that the Menominee boats had not been included in the deal. "The transaction," he said, "is nothing more than the transfer of the controlling interest in the stock of the Chapin Mine, such as might occur in other stocks on Wall street any day. Of course this changes the presidency, Ferdinand Schlesinger succeeding Mr. Hanna. There are some changes in the directory, also, as Mr. Hanna disposed of his whole interest in the mines, but who the new directors will be I do not know."

When asked if the consideration of $3,000,000 reported in the Milwaukee dispatch was correct Mr. Hanna replied: "You will have to ask Mr. Schlesinger about that."

The Menominee boats, known as the Briton, Saxon, Norman, German, Roman and Grecian, will, according to the terms of the contract between the Menominee Transit Company and the Chapin Mining Company, become wholly the property of the latter in about ten years. The boats were bonded for $1,020,000, and were given a ten years' contract to bring down Chapin ore at $1.10 per ton. The Chapin company pay 10 per cent. of the value of the boats every year. This agreement was probably the foundation of the story sent out from Milwaukee.

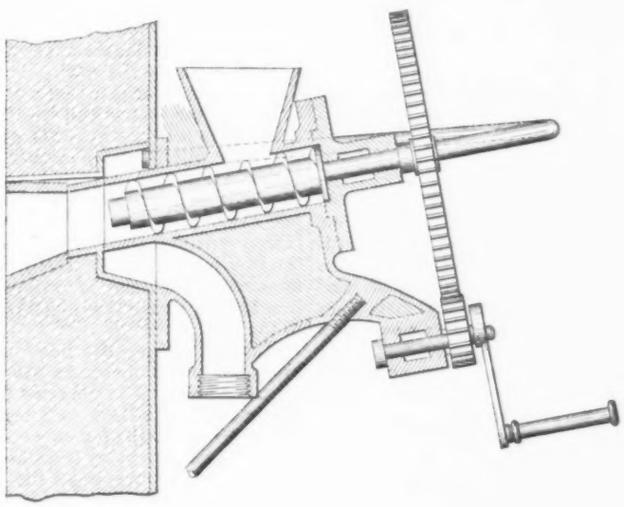
A Monster Cable.—The largest wire rope ever made in this city by the California Wire Works, says the San Francisco *Mining and Scientific Review* for May 28, was hauled by 60 horses up Market street on Friday of last week to the power house of the Ellis street cable line. The cable was manufactured in the remarkably fast time of 52 hours, and surpasses all other undertakings of a similar nature by any wire works in the United States. The rope is 29,020 feet in length and cost the cable company in the neighborhood of $8000. It is 1¼ inches in diameter and weighs 72,830 pounds. The reel weighed 6000 pounds and the truck 30,000 pounds. The gross weight hauled by the 60 horses was 108,830 pounds. The rope is to be kept in reserve in case of an accident.

In Franklin County, State of Washington, the people, who have formed an irrigation district, expect to lift their water 115 feet from the Columbia River. They are going to do it with steam pumps at the rate of 20,000 gallons a minute.

Apparatus for Smelting Cast-Iron Shavings.

The accompanying illustration represents an apparatus devised for smelting cast-iron borings, turnings, &c., by Jens Hansen, of Helsingor, Denmark. This arrangement is intended to pass the shavings through an aperture in the side of the smelting furnace opposite the smelting compartment, and the introduction is done in such a manner that the shavings shall not be thrown back to the apparatus by the blast, nor can the apparatus be blown down by the furnace, as has happened hitherto when attempts have been made to smelt this kind of material.

The cut shows the apparatus in central vertical section, partly in elevation, in connection with the smelting furnace, of which a piece of the wall is represented. The apparatus consists of a cylindrically-shaped case, which is cast together with the stand and the hopper. An inclined screw is firmly fixed on a tube which serves as an axle to it and has in its bearing a socket firmly screwed on the stand. The central tube has a bend which leads to the furnace, where it



APPARATUS FOR SMELTING CAST-IRON SHAVINGS.

debouches in an air chamber in the furnace wall. The shavings when thrown into the hopper are carried into the furnace by an inclined screw, operated by a crank arm and cog wheels. A strong air current is led through a lower tube into the air chamber, where it surrounds the case and protects it from the heat of the furnace, and also prevents a counterblast from the interior of the furnace throwing the shavings back. This apparatus has been patented in the United States and Switzerland.

A Pittsburgh Banquet.

The Pittsburgh Chamber of Commerce had a banquet on the 27th ult. and nearly all the leading manufacturers partook of the feast. The speeches that followed related to the growth of the city and its industries. Mayor Gourley stated that the manufactories of Pittsburgh number 1400, representing a capital of more than $100,000,000, employing nearly 100,000 men, and turning out products to the value of $200,000,000. Thomas S. Blair, who spoke upon "The Past and Future of the Manufacturing Industries of Allegheny County," showed what Allegheny County produced in the way of pig iron and steel. Of the former she produces 18 per cent. of the aggregate product of the United States; 20 per cent. of the figures for Great Britain; 33⅓ per cent. of those for Germany; 80 per cent. of that of France; 1⅞ times the product of Austro-Hungary; 2½ times the product of Belgium; 6 times the product of Spain; twice the product of Russia; 3½ times the product of Sweden and 100 times the product of Italy. In steel to day Allegheny County produces 35 per cent. of the aggregate product of the United States; 42½ per cent. of the figures for Great Britain; 58½ per cent. of those for Germany; 1¾ times the product of France; 2⅞ times that of Austro-Hungary; 5⅔ times that of Belgium; 22 times that of Spain; 5 times that of Russia; 8 times that of Sweden and 13 times that of Italy. Reuben Miller responded to the toast "Our Iron and Steel Industries." James B. Scott and others followed, Joseph D. Weeks, editor of the *American Manufacturer*, speaking on "Art and Pittsburgh."

The Smythe Fuel Gas System.

The Smythe system for the manufacture of fuel gas has been successfuly applied to the mammoth window glass tanks at Jeannette, Pa. The S. R. Smythe Company, engineers and contractors, Lewis Block, Pittsburgh, secured the contract from the Chambers & McKee Glass Company of Jeannette for the reconstruction of their window glass tank furnaces and for the artificial fuel gas plant. The tanks in question, three in number, are believed to be the largest in the world, each being 24 feet wide by 126 feet long, the three combined having a capacity of 2100 tons of glass. This factory for several months past has been at a considerable loss to find a substitute for natural gas, there being an insufficient supply to run the works as well as other industries, and at the same time serve domestic purposes of Jeannette. Oil was tried, with unsuccessful results, as it was expensive, and did not make a proper grade of glass. But the company secured the services of this Pittsburgh firm, who have had considerable experience with fuel gas for all purposes, and the engineer, S. R. Smythe, took hold of the plant. He had to work under very adverse circumstances, as these tanks were not constructed for fuel gas in the first place. It was, therefore, quite an undertaking, and other expert opinions were against the success of this plant. But the firm have completely reconstructed No. 3 tank, and considerable credit is due them for the manner and promptness in which they made this rapid change, which was done in less than 30 days, there being 750,000 brick and considerable iron used in the work, and the furnace was kept hot all the while.

Amid much rejoicing on the part of the good people of Jeannette, on May 11 the fuel gas was turned into No. 3 tank furnace. Everybody was interested in this, for the simple reason that it meant a good deal for Jeannette and its future prosperity. Not only is the fuel gas proving a pronounced success, but the officials of the glass company are so satisfied that they have ordered the Smythe company to proceed at once to reconstruct and apply their system to the other two tanks. In addition to this, more tanks will be erected, making this the largest window-glass factory in the world. Work will be commenced at once, and the whole plant will be in operation by September 1

These three tanks were originally built for 72 blowers each, but with the natural gas and other fuels used they were unable to work more than 57 blowers on a tank. With the Smythe process they can work the full number of 72 blowers on each tank, and, furthermore, the glass made by this fuel is pronounced by expert glassmen to be superior to any made by natural gas or any other fuel. So, therefore, it is readily seen that Jeannette will be more prosperous than ever, as the capacity of the tanks will be increased, which, with the additions, means more people and other industries.

American Wire Rod Mill Burned.

Shortly before 7 30 o'clock on the evening of June 1, flames were suddenly observed to burst out in the engine room of the rod mill of the American Wire Works, at the corner of Lake and Marquette streets, Cleveland, Ohio. The regular work was proceeding as usual, but the whole building was filled with smoke and flame in a moment, and the men were compelled to retreat to the outside. The space about the big 1500 horse-power engine was cut off before the engineer or any of his assistants could reach the throttle, and it continued running at full speed. The 30 foot belt wheel, which was making about 80 revolutions per minute, fanned the flames and greatly accelerated their action, and nothing could be done until the firemen arrived. A call for extra engines was sent in immediately after the first alarm, and in a few minutes five streams of water were pouring into the building. Above the roar of the flames the rattle of the machinery could be heard, and the engine continued in motion until the heat weakened the steam pipe, causing it to burst. The power thus taken away from the engine, the speed slowly decreased, and it finally stopped, and the firemen were enabled to work to better advantage. The fire was under control at 8.30 o'clock, when an examination of the interior of the building was made. It was found that the damage was confined chiefly to the engine room, the two engines and the building itself having suffered severely. Besides the large engine, there is another of 800 horse-power, and both were badly injured. The building was composed of steel and wood, there being enough wood in the construction to ruin the steel. The damage to the building and the machinery is placed at $20,000, covered by insurance.

The new fire-proof building to be erected on Broadway near Murray street, this city, for the Home Life Insurance Company will be a "sky scraper," rising 167.3 feet from the sidewalk, on a 30-foot lot. It will be 12 stories. On William street near Frankfort a building 14 stories, or 204 feet, high will be finished by January 1. Each will have a substantial iron or steel frame work. The Manhattan Life Building, on Broadway opposite City Hall Park, will be 16 stories high.

The Lalance & Grosjean Works.

The origin of the Lalance & Grosjean Mfg. Company, whose extensive works are at Woodhaven, L. I., dates back some 40 years, when Florian Grosjean, president of the company and the largest stockholder, began, with Mr. Lalance as partner, the manufacture of culinary vessels in New York City. In 1863 they moved to Woodhaven, where from 75 to 100 operators were employed. About six years later the business of the house had increased to such proportions that Mr. Grosjean, in view of securing better help for his increasing burden, as well as to give encouragement to his best employees, formed the present company, distributing a large number of shares among his leading men.

A disastrous fire completely wiped out the plant in 1876, but within a few months new works were erected on the same site. Since that time the plant has been improved and added to until it is to day the largest establishment of its kind in the country. Steady employment is given to 1400 persons, and their catalogue contains a list of over 5700 articles which they manufacture. When it is considered that the greater part of these articles require upward of 20 dies to bring them to a finished state, and that about 120 tons of sheet iron and sheet steel are consumed weekly in the manufacture of Agate ware, and from 3 to 4 tons daily of tin plate in the manufacture of tinware, in addition to large quantities of copper for making copper vessels, some idea will be had of the magnitude of the works. The company, however, have always labored under one disadvantage, namely, that most of their material had to be imported, necessitating the placing of orders two or three months in advance, and, further, they have never been able to procure sheets conforming strictly to their requirements. It was to obviate these difficulties, as well as to bring the entire process of manufacture, from the raw material to the finished product, under their own supervision, that the company decided to build a rolling mill to be devoted exclusively to the manufacture of sheets for consumption in their own works.

After going carefully over the ground, it was decided to locate the mill at West Harrisburg, Pa., about ¾ mile from the city of Harrisburg and 1½ miles from the State Capitol. This location was selected on account of its proximity to materials and the advantages offered for railroad transportation. The Board of Trade of Harrisburg also made very liberal inducements for the location of the works at that point. The site comprises 12½ acres of ground, well situated for the purpose to which it is to be put. Excavations for the foundations will soon be finished, and the office building is already completed. The trench for the former is 12 feet wide and 10 feet deep. The main building will be 220 x 208 feet, with columns on the side 25 feet high, with two spans 84 feet each and a lean-to of 40 feet. This building will be erected by the Pennsylvania Steel Company, and will be constructed of steel throughout. The sheet rolling mill will be double and independent, each set being driven by its own engine. They will consist of five pairs of rolls each. The contract for the rolling mill proper has been given to the Robinson-Rea Mfg. Company of Pittsburgh, the price being $78,000. The engines, 30 x 60 inches, for the sheet mill will be built by William Tod & Co. of Youngstown. Steam will be supplied from a battery of ten horizontal tubular boilers, 6 x 18 feet. They will be made by the Harrisburg Foundry and Machine Works. A blowing engine, to supply air for the knobbling fires, will be built by the Weimer Machine Works Company of Lebanon, Pa. It will be of the vertical inverted type, and will have a steam cylinder 18 inches in diameter, an air cylinder 48 inches in diameter and 30 inches stroke. There will be 18 knobbling fires, a steam hammer with a 6000-pound ram, four heating and annealing furnaces and the necessary room for pickling to make cold-rolled iron. A regular bar mill, with bull's head, will be run by its own independent engine, 30 x 48 inches; also built by William Tod & Co. All the necessary shears required in such a plant will be provided, and, contrary to the usual practice of running them by belting or cam, these will have their engine independent.

The stacks, of which there will be two, one for each five boilers, will be of iron, 6 feet in diameter and 85 feet high. A double set of duplex pumps to supply the boilers, having 10 inch steam cylinders, 7-inch water cylinders and 12-inch stroke, will be put in. The contract for these has not yet been awarded.

The company are also having constructed a large number of special machines, which will be used in conjunction with the rolling mill for their special purposes. The lean-to will contain special machines for cutting out all the blanks necessary for the works at Woodhaven. The works will be lighted by electric light, furnished by the Harrisburg Electric Light Company. Ample protection will be taken against fire, and particular attention has been given in the designing of the plant to securing good light and ventilation. The main line of the Pennsylvania Railroad passes close to the works, and two tracks, each 2500 feet long, will be laid, one on each side of the building, thus affording excellent shipping facilities. The works also connect with the city of Harrisburg by an electric surface road. An abundant supply of pure water was struck on the property at a depth of 35 feet. The mill will make sheet iron and sheet steel for the company's own use. Should there be any surplus, it will be put on the market. The company expect to have the plant running by October 1 next, and will employ 200 hands. Its capacity will be 10,000 tons per year of gauges 24 to 26.

With the opening of the new mill the company will be able to receive at their factory at Woodhaven the blanks ready for the stamps, and will do away entirely at that end with the labor of handling the scrap, which in itself is now a big item. A scrap furnace at the new mill will rework the waste material, and the factory will be enabled to work much more rapidly and smoothly than it does now, when all the blanks have to be cut on the premises and the waste material disposed of. In addition to the new plant at Harrisburg, the factory at Woodhaven is being enlarged by the erection of a building in the form of an L, 300 feet long by 40 feet wide, four stories high and basement. It will be equipped entirely with new machinery, for the most part made in the company's own machine shop on the premises, and will contain an engine of 250 horse-power, made by the Fitchburg Machine Company of Fitchburg, Mass. The company's main office is at 19 Cliff street, New York, with branches at Chicago and Boston.

In Scotch engineering circles considerable interest has been excited over a process which has been discovered for enameling the interior of boilers, with a view to the prevention of corrosion and incrustation. Experiments have been proceeding with the process for the last three years, and the results are certified by local firms to be of a most surprising and successful character. Further tests are being applied.

Silicon in Foundry Mixtures.

BY W. J. KEEP.

Thin iron castings for light hardware and for stoves must be gray and soft and have as little tendency to chill as possible. The chilling tendency which some irons possess seems to be independent of chemical constitution, and was given to the iron in the blast furnace. In such irons some peculiar relation seems to exist between the silicon and carbon which causes the iron to be white if suddenly changed from a liquid to a solid. Some ores produce a chilling cast iron, and when smelted with charcoal such tendency is increased. When the iron has been made with a tendency to chill such peculiarity cannot be removed, though it may be partially overcome for the time being. Therefore for stove-plate castings such chilling irons should not be used, and in making purchases it should be stipulated that the pig iron bought shall make castings free from chill when such pig iron is melted in a crucible under proper conditions. In this case prevention of chill is worth much more than any partial cure.

Phosphorus and manganese in the quantities usually found in pig iron have practically no influence upon the iron and do not influence the chill.

The grayness of thin castings is entirely caused by the carbon and the silicon in the iron. The presence of either one without the other will cause the casting to be perfectly white and extremely hard. Pig iron will not contain much more than 4 per cent. of carbon. The presence of silicon separates some of the carbon from the iron just as it solidifies, and it is the imprisoned particles of carbon that are caught in the mass that give the gray color to the iron.

Without silicon the iron could not be gray, but would always be white. Silicon then is a necessity in gray cast iron. From 2½ per cent. of silicon to 3 per cent. will give the best results for very thin castings. The open gray foundry irons used for thin castings will contain about this quantity.

Molten white iron is thickly liquid and fluidity is given to melted iron by so influencing carbon that when the iron cools a portion will change into graphite.

The larger the percentage of graphite after the iron is solid the more fluid will the iron be while molten, and before the graphite separates. As silicon is the agent which causes the formation of graphite, it is silicon which causes cast iron to be fluid.

It has been said that phosphorus causes iron to be fluid. It does cause it to remain fluid some time longer, but probably does not make it more fluid.

Production of Pig Iron.

Pig iron is produced in the blast furnace with more or less shrinkage, which is independent of chemical constitution; therefore selecting iron that will produce castings with small shrinkage is the best method for reducing shrinkage. Graphite is very bulky, and as it separates in the iron after the iron is in the mold, and at the instant the iron becomes solid, it takes up more room and the castings are larger according as the quantity of graphite is increased. Silicon is the sole cause for the formation of graphite; therefore silicon reduces shrinkage.

Fluidity and lessening of shrinkage will cause the edges of a casting to be sharp; silicon, therefore, makes perfect castings.

Tendency to Chill.

If an iron has a tendency to chill, by increasing silicon the depth of chill may be decreased while the silicon remains in the iron, but if the silicon is again diminished the chill will return; therefore we say that silicon reduces chill.

White iron is brittle, while gray iron is somewhat ductile; therefore silicon adds ductility to cast iron. Gray iron is softer than white iron; therefore silicon by making iron gray softens cast iron—hence, the name of softener for silicon iron. If pig irons are used in such proportions as to give about 3 per cent. of silicon, and are melted in a cupola furnace in contact with the fuel, considerable of the silicon will be driven out of the iron and the castings will not contain as much as the pig metal. Sulphur will cause silicon to leave molten iron, and as all fuel contains some sulphur, the melting of iron will reduce the silicon that it contained while in the pig.

Sulphur is not evenly distributed throughout the fuel, and cannot be distinguished by the eye; therefore any carload of fuel may contain more sulphur than was expected, and the result will be an increased expulsion of silicon, and consequently closed-grained, hard, light-colored castings.

Presence of Sulphur.

In every-day practice we can only know of the presence of sulphur in the fuel by the results, and such knowledge comes after the fuel is burned, and, therefore, it cannot be guarded against.

The sulphur does not stay in the casting. It does the harm and passes out of the stack.

The blast of air also burns out some of the silicon. As next day a considerable portion of this close-grained iron must be returned to the cupola, the closeness and hardness is increased as the silicon is diminished.

To make a mixture of iron for light castings and run a cupola which shall produce a uniform soft-gray product is simply a question of keeping the silicon up to between 2½ and 3 per cent. of the mixture. It makes little difference where we obtain the silicon if we only get in enough to keep up the percentage.

If we admire dark castings and a dark open grain, it is best to use a larger quantity of dark open-grained pig. The reason for this is that each time the iron solidifies the silicon drives some of the carbon entirely out of the iron, and repeated remeltings, therefore, reduce the carbon as well as the silicon, and as the dark color came from the carbon, its expulsion causes the castings to be lighter in color. The only way to renew carbon and silicon at the same time is to use plenty of No. 1 pig iron; but as this rarely contains more than 3½ per cent. of silicon it will be impossible in this way to increase silicon rapidly, and if a second dose of sulphur should follow the first, it might be difficult to soften the castings quick enough to prevent loss.

No. 1 pig iron, especially that which is dark grained, is expensive, and while it is a fact that the more carbon there is present the less silicon will be required to produce a given grain, yet additions of silicon by the increase of No. 1 iron will in any case be expensive and will need very close attention. We might call the adding of silicon and new graphitic carbon by means of No. 1 pig iron the natural way to produce gray castings.

Artificial Method of Producing Gray Castings.

The other way, which may be called the artificial method, is to purchase irons that can be bought most cheaply and bring up the silicon by additions of silicon pig. This will turn the carbon of the iron into graphite and make cheap hard irons soft and gray. This method will produce close-grained castings, light in fracture, but strong and soft. If there is sulphur in the fuel to lessen the silicon an increase of silicon pig will restore the silicon at once. In this way, with cheap irons, which are easily procurable, as good castings can be made as with higher-priced No. 1 iron.

This method has some other advantages. The adding of silicon to the melted iron artificially forms graphite after the iron has entered the mold and just as the iron solidifies. The graphite which reaches the surface of the casting forms a facing between the iron and the sand of the mold, which is more effective than facing shaken on, and gives the casting a glistening, silvery surface.

The reason for the grain being closer and the carbon being diminished is that high silicon iron contains less carbon than No. 1 or No. 2 gray foundry iron, and, therefore, at each addition the carbon will become less and the casting will grow lighter in color.

Silicon Pig Iron.

Before closing let us say a word regarding silicon pig iron. As silicon drives out carbon, the higher the silicon the less the grain in a pig iron or a casting.

Pig iron containing 10 per cent. of silicon has very little grain, and with 15 per cent. the grain is generally absent, and often high silicon irons are full of blowholes.

Pig iron with from 4 to 6 per cent. of silicon can be produced at ordinary blast furnace temperatures from suitable ores, but to obtain the high percentages a furnace must be run at an unsafe temperature. The high grades are therefore more expensive, and, being deficient in carbon, are no better for use than the lower grades, which are more easily and cheaply obtainable.

Kind of Silicon to Use.

As to the kind of silicon iron to use, it makes but little difference where the silicon comes from. One iron is about as good as another if the same rules regarding chill and shrinkage are observed as are applied in the purchase of gray pig.

Very high silicon irons will often give quite a deep chill and must, therefore, be avoided.

The location of the foundry will determine what irons are most desirable to purchase, and it will take some experiment to find out what irons will go best together.

We sometimes hear of some one who does not believe in the use of silicon iron, or who has not produced good results by its use. It must always be remembered that for soft gray castings as thin as stove plate the silicon should be about 2¼ per cent. If your castings already contain that amount it will result in damage to make it higher. The only place to use silicon iron is in a mixture deficient in silicon. For machinery castings, which should contain about 1½ per cent. of silicon, mottled and low grades of gray foundry pig may be used, and if more silicon is needed a little No. 2 or No. 1 may be added, it being an easy matter to keep up the silicon, or very close gray and even white pig iron and burnt scrap may be used if the required percentage of silicon is restored by additions of No. 1 pig or by silicon pig iron.

Number of Brands to Use.

A difference of opinion exists as to the number of brands of pig iron to be used at one time. It is impossible to run a blast furnace regularly. The silicon varies considerably in the pigs made from one cast, and a furnace is likely to go wrong at any time.

It is impossible to refuse iron made at such times, even if it were possible to determine when the iron was not such as was purchased. It is therefore best to use a variety of makes of pig iron in making up a mixture; the greater the variety the better.

Then any temporary variation in one or two of the irons will not materially influence the castings. It is sometimes claimed by the blast furnace manager that it is better for him to make a proper mixture of ores in the furnace so as to produce exactly the iron desired, and sell the iron on a guaranteed analysis, and not trust to the foundryman's judgment as to what a mixture should be.

It would be a good idea for all furnacemen to produce this kind of iron if they are able to do so, but as their furnace may go back on them several times in a week, it is better to have several brands of such irons mixed together for the reasons just given. If any variation should then occur to influence the castings a small addition of silicon pig will set all right at once.

San Francisco News.

SAN FRANCISCO, May 30, 1892.

"How is the market for pig iron?" I inquired of a well-known dealer in coal and iron the other day. "Very dull and depressed—nothing doing," said he. "How about American iron?" I asked. "There is nothing else selling," said he, "at least nowadays." The gentleman in question deals only in foreign iron, as all the Alabama iron in the market comes to one particular firm. His words cannot be taken literally, but they show that American iron is at last coming to the front in this market to the exclusion in a great degree of British iron, which for 44 years has ruled the roost here. There has been but little pig iron imported for quite a while, only about 100 tons, partly Oregon and partly Eastern. Despite the recent light imports the total receipts of pig iron at this port have been in excess of those for the same time in 1891. The total receipts of pig of all sorts to date this year have been 6913 tons, of which 5003 tons have been foreign. For the same time in 1891 the total was 5501 tons, of which 4430 tons were foreign. The total imports of pig and scrap have been 11,626 tons, as against 10,764 tons for the same time in 1891. The new iron is spoken well of even by those whose trade it will damage, and quite a good deal of it has been purchased to arrive by our foundrymen. The price of pig iron in this market is now $23 to $25 for English, Scotch and American and $22.50 for Clay Lane. The new price-list of $2.35 for bar iron by one of our local manufacturing establishments is likely to give Eastern shippers all they can do to compete, although, of course, as compared with $1.90 to $2 in your markets the price appears to be ridiculously high. But the railroad or ship freight would have to be $9 a ton to meet it; it therefore looks as if our local estsblishments should have the field to themselves as far as their capacity goes. And this goes a good way. The total imports of bar iron; both foreign and domestic, were in 1891, say 10,000 tons—that is, of imports to this city. Taking in the rest of the State there is probably as much more, and if we include Oregon and Washington, perhaps 10,000 tons more. Of course the distance to which our rolling mills can compete is dependent on the freight problem—that is, shipments can be made to just that point where the freight rates equalize prices. This, of course, does not cover the whole of the territory alluded to—just about one-half of it. The logical conclusion then is that at present the San Francisco institutions can supply about one-half the whole consumption of refined bar, or say, 15,000 tons, leaving the balance to Eastern manufacturers. The sale of refined bar, of course, forms only a small proportion of the total amount of iron and steel used in one way or another on the coast. But with the advent of the corporation which will establish its works at Baden, and which, as well as gun forgings, will manufacture various other descriptions of iron, a further

inroad will be made on the trade of Eastern centers with this coast and mayhap in a few articles of hardware as well, although the smallness of our market will for a long time render any sort of competition with Eastern manufacturers in this line a matter of little probability. Except in certain special lines, manufacturing industry in California has been a plant of slow growth, but better times are in store for the manufacturer, especially when this and its sister cities shall have mastered the railroad question. As far as Eastern goods are concerned there will soon be an opportunity to aid in its solution, as the great and wealthy firm of Grace & Co., well known in the leading ports of the world, has started a line of clipper ships to run between this city and New York with the express purpose of co operating with the railroad and the Pacific Mail Company. The Chas. E. Moody will be the pioneer of this line.

The Fulton Iron Works of this city will build a new tugboat for the harbor commissioners. She will be 80 feet long, with 19-foot beam and a draft of 9½ feet. The contract price is $22,475. Several of our foundries bid, thereby showing their anxiety to enter into the shipbuilding line. The fact that the Southern Pacific is about to receive 30 new engines, ordered some months since from Schenectady, N. Y., to be put into service within the next two weeks, is enough to make our foundrymen pause. The question is, Why were not these engines built in San Francisco, or, at least, in California? Of course, the answer must be that they are cheaper than could be turned out in California, but that is by no means comforting. Strikes have a good deal to do with this, and other similar examples of important work being sent to the East are not wanting.

Imports by sea for the past two weeks have not been large, the vessels arriving not having as large a proportion of iron and hardware as for some time previously. There is a very fair demand for hardware, a moderately active demand for merchant iron and steel, while agricultural implements still sell very well. We have had no further large arrivals of tin plate, which remains quiet at $5.87½. Pig tin sells at 23½ cents.

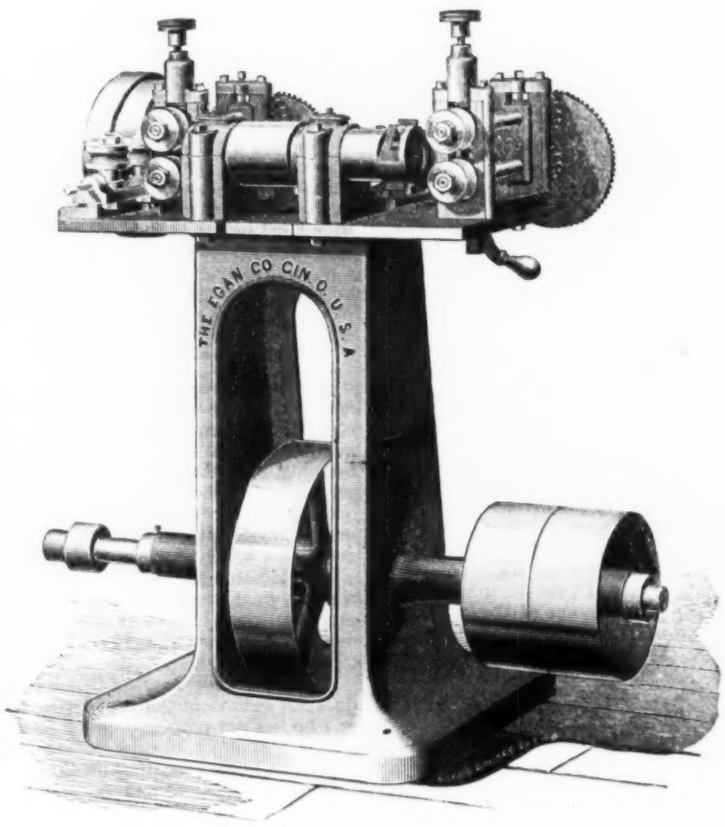
All rail receipts have fallen off slightly; for the two weeks they have been 8 cars of agricultural implements, 3 cars of iron, 11 cars of machinery, 6 cars of stoves, 3 cars of wire, 12 cars of hardware, 4 cars of plates, 10 cars of pipe, 2 cars of rakes, 1 car of cable, 1 car of kettles, 3 cars of wagons; total, 64 cars, and 2 cars nails, 225 rails, 5210 pounds copper.

Though the prices of cotton during the past year, on account of excessive production, declined to the lowest level since 1849, the decline has been a gradual one, the lowest point having been touched after nearly 75 per cent. of the crop had left the hands of the producer. Referring to this, the annual report of the New York Cotton Exchange says: "No better evidence could be found of the benefit of the present methods of transacting business than this fact, when comparison is made with the rapid and disastrous fluctuations current before the laying of the Atlantic cable and the consequent development of the system of buying and selling of cotton for future delivery, which attracts to the support of values buyers from many different sources."

The Russian Volunteer Fleet Association have just ordered from Hawthorn, Leslie & Co. of Newcastle-on-Tyne, a 10,000-ton steamer for the Black Sea trade. She is to have a maximum speed of 18 knots, and will be so constructed that she can be turned into an armed cruiser at 24 hours' notice.

Power-Feed Wooden-Rod Machine.

This machine for making rods, pins and dowels is built by the Egan Company of Cincinnati, Ohio. The iron frame is cast in one solid cored piece, and occupies but little floor space. It has a broad base, giving it a firm and solid bearing on the floor. The feed is very powerful, consisting of six geared feeding rolls, the first two feeding in the square stock and the last four feeding out the finished rod. The first have angles in their faces to hold the rough stock, and the latter a groove to suit the finished stock. The feeding-in rolls are given tension by springs, so as to conform to any inequalities of the stock, and are pivoted so they can be quickly swung out of the way when a change of chucks or heads is desired. The mandrel is hollow and has a large pulley running between long bearings, giving ample belt power for turning either green or dry stock. This machine is built in three sizes, to cut from ¼ to ⅝ inch, from ¼ to 1⅛ inches and from ¼ to 2 inches.



POWER-FEED WOODEN-ROD MACHINE.

Trade Publications.

We have received from A. & P. Roberts & Co., Pencoyd Iron Works, Philadelphia, a copy of the eighth edition of their admirable hand book for engineers and architects, entitled "Wrought Iron and Steel in Construction." We are informed that the book has been revised and rewritten entirely, and includes information concerning the complete list of steel sections. Special attention is called to the treatment of buckled plates and corrugated flooring. These subjects are of increasing importance owing to the attention now being given to the erection of fire proof buildings. The information given covers the essential details of this method of construction and will be found of great value by engineers and architects. About 25 pages are devoted to the consideration of struts of iron and steel, covering a good deal of data derived from an extensive series of experiments. In the tables given struts are classified in four divisions, namely, fixed-ended, flat-ended, round-ended and hinged ended. The concluding pages of the book are devoted to plates showing the sections of iron and steel rolled in the Pencoyd works. There are 257 pages of reading matter and tables. The work is very handsomely gotten up, nicely printed on good paper and neatly bound in cloth.

The West End Rolling Mill Company of Lebanon, Pa., have issued a circular with regard to their chains. They make cable, crane, coil, block chains, &c. The circular gives a full list of the sizes of the chains made and the weights of each size. They state in connection with the list that they test all their chains. Each link is welded by hand and examined carefully by the workmen, so that every link is reliable. The iron used in their chain works is all rolled at their own mill from selected stock, and adapted for making uniformly strong chains. They state that their crane chain is made of standard chain iron, especially rolled for and adapted for high test chains. It is strong and fibrous, and has a tensile strength of 53,000 pounds per square inch. Their X. B. special crane chain is made from double-worked chain iron, and it is claimed to be equal to English B. B. B. crown chain. It has a tensile strength of 55,000 pounds to the square inch.

Under the name of "Berthel's Business Directory of South America, Central America, Mexico, Cuba and West Indies," Jules Berthel has compiled a business directory for the Argentine Republic, Brazil, Uruguay, Paraguay, Chili, Peru, Ecuador, Bolivia, Colombia, Venezuela, Costa Rica, Salvador, Nicaragua, Honduras, Gautemala, Mexico, Cuba and the West Indies. This work contains a carefully selected list of names of merchants, importers, wholesale dealers, manufacturers, professors and trades in the above countries. It is intended to be a reliable and standard book of reference. B. R. Sheriff is manager, to whom inquiries should be addressed at 112 North Charles street, Baltimore.

The Allentown Rolling Mills of Allentown, Pa., issue a pamphlet covering the products of their engineering and crane department. The illustrations show a great variety of cranes, covering electric, pneumatic, steam and hand power. In addition to manufacturing jib cranes they also make overhead travel-

ers, locomotive cranes, railway wrecking car cranes, wharf shears, heavy dock or bridge cranes, locomotive turntables, &c. A railroad switch and signal department is also operated, manufacturing interlocking apparatus and every variety of switching and signaling appliances, together with steel rail frogs, switch stands, split switches, &c.

EGLESTON BROS. & CO., iron merchants, 166 South street, New York, have issued a neat little pamphlet entitled "Valuable Information for Buyers of Bar Iron." The information comprises a table giving a comparison of various qualities of bar iron, showing tensile strength, elastic limit, reduction and elongation; a test of ordinary refined bar iron; another of Tuf best refined bar iron; another of H. B. & S. bar iron; another of Burden's Best bar iron; another of Norway or Swedes bar iron, selected brands. All these tests were especially made by Fairbanks for this firm. The data given will be found useful by those who are in search of special qualities for special purposes. The pamphlet also gives tables of the weight per foot of different sizes of round, square and flat iron, steel tire, cast steel, &c.

Three great potteries at Trenton, N. J., have been merged into a single corporation, with a capital of $3,000,000. Closely following is a combination of umbrella manufacturers, whose certificate of incorporation was filed at Albany on Saturday.

Steam Engine Governor.

This governor, designed by O. Rosholt of Oconomowoc, Wis., has given excellent results in use on planing-mill engines where the load varied often between the two extremes. The first engraving represents an engine fly wheel with the governor in place, the others being sectional views showing more clearly the construction of the most important parts.

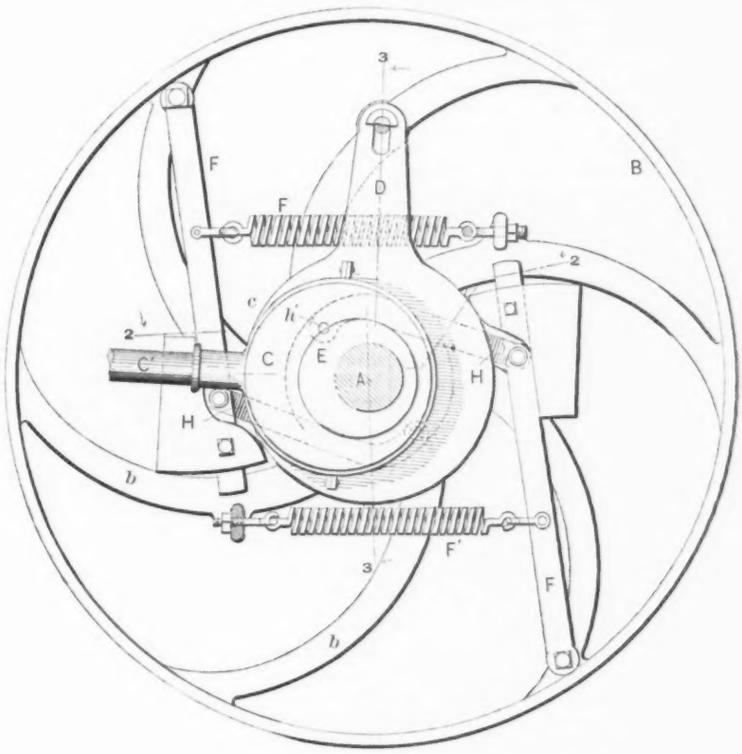


Fig. 1.—Side Elevation.

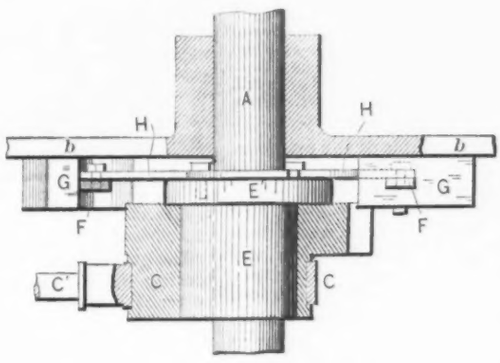


Fig. 2.—Section on Line 2 2 of Fig. 1

The engine being started, the wheel B is rotated by the motion of the crank shaft, and the arm D is carried around the shaft by its connection with one of the spokes. This rotation of the eccentric arm turns the eccentric about the shaft and the rotation of the eccentric operates to give a longitudinal movement to the slide valve in the ordinary way. The centrifugal force occasioned by the rotation of the governor mechanism about the shaft tends to throw the weights G G and the arms F F outwardly, while the springs resist this movement to a certain extent. If, however, the speed of the engine becomes excessive, the weights will move outwardly and will, by the consequent movement of the arms F F, cause the links H H to also move outwardly so as to rotate the inner eccentric E about the shaft. This rotation of the inner eccentric will obviously operate to move the outer eccentric C toward the shaft, so that its eccentricity will become less and the consequent motion of the valve rod and the slide valve will be proportionately less, thereby serving to lessen the supply of steam to the cylinder. When the motion of the engine becomes less rapid the springs will operate to draw the arms F F inwardly, so as to return the parts to their initial positions.

It will be observed that by this construction the eccentric which governs the operation of the slide valve is held firmly in position by the engagement of the inner eccentric therewith, while the operation of the governor mechanism serves to automatically increase or decrease the steam supply in proportion to the work being done by the engine, so as to maintain a very uniform speed of the engine.

It is claimed that this governor may be used in connection with any form of slide valve, either balanced or unbalanced, and that a much closer regulation of the engine is possible than with a governor of any of the ordinary forms of construction.

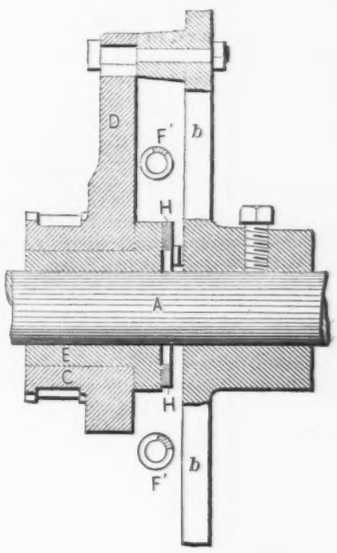


Fig. 3.—Section on Line 3 3 of Fig. 1.

STEAM ENGINE GOVERNOR.

The Titusville Calamity.—The ravages of flood and fire at Titusville and Oil City in Pennsylvania on the night of the 4th inst. bring to mind the horrors of the flood at Johnstown three years ago. The great rains of the past week filled the headwaters of Oil Creek and its tributary mountain brooks, until bank full it swept down upon the towns below scattered along its shores in constricted areas, forced to build but little above the high water limit on account of the hills that gird all the valley. The breaking of one of the numerous dams on the East Branch gave that impetus that first threatened Titusville, about 15 miles below, with a disastrous flood, but as the raging waters rushed along the streets the collapse of several refinery stills and the explosion of oil threw the liquid on the waters, and it was then the terrors of the flood gave way to the terrors of fire. From Titusville to Oil City the muddy waters covered with

great patches of flame burned their way, and it is believed that about 200 lives have been lost in Titusville and probably 300 in Oil City, while over $2,000,000 worth of property has been destroyed by the two unrestrained elements.

Treasury Decisions.

Drawback on Steel Drills.

TREASURY DEPARTMENT, April 11, 1892.

SIR: On the exportation of steel drills, manufactured by the Standard Tool Company of Cleveland, Ohio, wholly from imported round bar tool steel, by the process of cutting the drill from the cold bar, a drawback will be allowed equal in amount to the duty paid on the imported material used in the manufacture, less the legal deduction of 1 per cent.

The quantity of the material so used shall be determined by adding to the net weight of the exported articles 96 per cent. of such weight. Respectfully yours,

O. L. SPAULDING, Ass't Sec'y.

Collector of Customs, New York.

Drawback on Railway Cars, Wheels, &c.

TREASURY DEPARTMENT, April 14, 1892.

SIR: In reply to your letter of the 11th inst. the Department has to inform you that articles manufactured from imported materials may be exported from your port for drawback under the provisions of section 25 of the act of October 1, 1890, and the regulations prescribed in pursuance thereof.

The cars built by the Wason Car Company, referred to by you, may be entered for transportation and exportation under the form of entry prescribed by article 24 of the Regulations.

In view of your statement that the imported wheels used in the construction of said cars can be easily identified, you are hereby authorized to allow on said wheels a drawback equal in amount to the duty paid on their importation, less the legal deduction of 1 per cent. Respectfully yours,

O. L. SPAULDING, Ass't Sec'y.

Surveyor of Customs, Springfield, Mass.

Ascertainment of Drawback on Cans and other Articles Manufactured from Imported Tin and Terne Plates.

TREASURY DEPARTMENT, April 28, 1892.

To Collectors and other Officers of the Customs:

When articles entitled to drawback on exportation, made wholly from imported tin or terne plates, and on which no allowance for wastage is to be made, are exported in such condition that their weight may be determined by a United States weigher at the time of exportation, such weight shall be accepted as the basis for the liquidation of the drawback entry.

When 5-gallon tin cans are made from a combination of two plates, each 14 x 19¼ inches, with one plate 10 x 20 inches, all standard IC tin plates, the quantity of plate used in their manufacture may be determined by allowing 2½ pounds for each can exported; provided that should the plates used be shown by the records of importation to weigh less than 2½ pounds, the rate here fixed shall be correspondingly reduced.

The superficial quantity of tin or terne plates used in the manufacture of boxes or cans other than the 5-gallon can above noted, or of other articles made from such plates, may be determined by measurement of the blanks or parts of which the box, can or article is composed, and by the addition to surface quantity of the respective parts, to cover wastage in manufacture, of the following percentages:

	Per cent.
For rectangular blanks	3
For body pieces of frustum-shaped cans	7
For circular and oval blanks	15

The number of square inches of plate being so found, the weight thereof may be determined by dividing such number of square inches by the number of square inches of plate in a box of the size identified by the manufacturer and multiplying the weight per box on which duty was paid on importation by the number of boxes so found.

In case blanks for cans, boxes, or other manufactures of tin or terne plate are in such form that the superficial quantity of plate appearing therein cannot be readily determined by measurement, such superficial quantity may be found by weighing a measurable section cut from such blank and comparing its weight with the weight of the blank. When a sample of the scrap resulting from the cutting of such blank is furnished with the sample blanks required for the use of the collector, the amount of plate used in the manufacture of the articles or parts in which such blanks appear may be determined by adding to the blanks, to cover wastage in manufacture, a quantity of plate equal to that part of the scrap resulting from cutting such blanks, which is rendered worthless for the ordinary uses of tin or terne plate, provided that such allowance shall in no case exceed 25 per cent. of the weight of such blanks, except under special instructions from the Department.

Where articles are made from uncut plates or from rectangular blanks cut from plates from which the rough edges have not been trimmed in process of manufacture no allowance shall be made for wastage.

In case samples of cans or boxes and blanks (when blanks do not so appear in the finished articles that they may be measured) are not furnished by the exporter, the quantity of the material used may be determined by adding 5 per cent. to the surface measurement of the finished article, to cover seams and wastage in manufacture.

O. L. SPAULDING, Ass't Sec'y.

APPRAISERS' DECISIONS AT NEW YORK.

Iron Pulley Blocks.

In the matter of the protests of David Round & Son, against the decision of the Collector of Customs at Cleveland, Ohio, as to the rate and amount of duties chargeable on certain castings and forgings, imported per Runic, May 27, 1891, and Britannic, November 2, 1891. Opinion by Wilkinson, General Appraiser.

A representative sample of the merchandise is an iron pulley block or hoisting apparatus, complete with the exception of the chain, which is a necessary adjunct of the machine. The machine is made from ordinary castings, malleable castings and wrought iron, which have been drilled, bored, turned or otherwise manufactured or fitted together to make the article, which is and is commercially known as a pulley block. The merchandise was assessed for duty at 45 per cent., under paragraph 215, N. T., and is claimed to be dutiable under the provisions of the tariff for castings, malleable castings and forgings.

We find that the goods are pulley blocks made from castings and forgings, but that they are not castings and forgings of iron, nor are they so commercially known.

We hold that the pulley blocks are not provided for as castings and forgings, and that their classification by the Collector is correct. The protests are overruled accordingly.

Steel Billets for Bicycle Tubes.

In the matter of the protest of David L. Cockley, against the decision of the Collector of Customs at Cleveland, Ohio, as to the rate and amount of duties chargeable on certain steel billets, imported per rail, January 26, 1892. Opinion by Wilkinson, General Appraiser.

The goods are hollow steel billets, tubular in form, about 18 inches in length, and valued above 3 and not above 4 cents per pound. They were assessed for duty at 1.6 cents per pound, under paragraph 146, N. T., and are claimed by the appellants to be dutiable at 10 per cent. as a crude or at 20 per cent. as a manufactured article not specially provided for.

The merchandise is intended chiefly for the manufacture of bicycle tubes, and is of the character of the billets and swaged steel provided for in paragraph 146.

We hold that it is provided for in the paragraph named, and the decision of the Collector is affirmed accordingly.

Rod Mill Infringement Suit.

The Illinois Steel Company of Chicago have, through their counsel, John R. Bennett, brought suit in the Circuit Court of the United States at Pittsburgh against the Pittsburgh Wire Company and President Thomas W. Fitch for infringement of the Garrett rod mill patents. The Pittsburgh Wire Company recently constructed and put into operation a rod mill, and the suit is brought for injunction to stop the running of the mill and for an accounting of profits and damages in the sum of $50,000. William Garrett's rod mill patents, as is well known, have secured general recognition both in this country and abroad, and practically all the modern rod mills have been built under licenses obtained from Mr. Garrett and the Illinois Steel Company, the manufacturers paying large considerations therefor, already amounting, it is said, to more than half a million dollars.

Mr. Garrett is undoubtedly the foremost constructor and improver of rod mills in the world, and to his improvements almost entirely is due the present great development of the wire rod industry in this country. Prior to Mr. Garrett's inventions, covered by the patents involved in the above-mentioned suit, comparatively few rods were manufactured in this country, it being chiefly a foreign industry; but the introduction of the Garrett mill completely revolutionized the business and made it possible, owing to the great capacity of the mill, for domestic manufacturers not only to compete with the foreign manufacturers, but, as is the case at the present day, almost to exclude the foreign rods from this country, the capacity of the Garrett mill being four or five times as great as the old Belgian mill formerly used.

Forgings for Big Guns.

The gun foundry at Washington City is turning out forgings for the new high-powered rifles with expedition. Up to date there have been completed 18 10-inch, 19 8 inch and 129 6 inch high-powered rifled guns, while under construction but practically completed there are four 10-inch and two 8 inch guns, the whole number being intended for the primary batteries of the new vessels of the navy. As secondary batteries of the battleships, or as primary batteries of certain other vessels, particularly those of the gunboat and smaller cruiser class, there are completed, or nearly so, 29 5-inch and 35 4-inch rapid-fire guns, from which excellent results are expected. When it is remembered that only a few years ago many of the forgings for our guns were shipped from England, as were all our armor plates, it is a matter of proper national pride that to-day we have a plant where we can turn out a great number of high-power rifled guns equal to those of any other country.

At the Builders' Trade School in Philadelphia last week 65 pupils were under examination.

The Proposed Scale West of Pittsburgh.

We have already made mention in these columns of the fact that the bar iron manufacturers of the Mahoning and Shenango valleys and other points west of Pittsburgh had prepared a wage scale governing wages to be paid in rolling mills located in those places for the year commencing on July 1, 1892, and ending on June 30, 1893. We give below this scale in full, and, as will be noticed, a great many changes from the scale now in force have been made, and a material reduction in wages for nearly all classes of labor is asked. The new scale is based on $4.50 for boiling on a 2-cent card, instead of $5.50, the present rate. In addition to this the clause relating to limitations in time to the heats on single and double puddling furnaces has been stricken out entirely. The clause is as follows:

In order to insure uniformity of iron in boiling furnaces and avoid the increasing custom of running in strong for common iron, thus increasing the hours and work of the boiler, the limit of time for each heat shall be as follows: For a single furnace, one hour and forty-five minutes; for a double furnace, one hour and fifty minutes; for Siemens furnace, one hour and fifty-five minutes, and for a double double furnace, two hours. The time shall be reckoned from the time the door is dropped after charging until the heat is ready to draw, and accidents and unavoidable detentions are not to be reckoned in. When a majority of the furnaces in any mill require more than the time specified to make their heats, due notice shall be given to the boss, in accordance with Article X of the Constitution. By the word majority is meant a majority of the furnaces working hard iron. Inferior coal, which increases the working time beyond that specified above, shall be considered a grievance.

In the muck or puddle mill scale the following clause has been stricken out:

For doubling muck iron on two high muck rolls the roller shall receive seventeen (17) cents per ton extra above scale prices.

The price for scrapping and busheling on a 2-cent card is reduced from $2 to $1.60 per ton. In the bar mill scale the price for heating and rolling on tons of 2240 pounds is reduced from 70 cents on a 2-cent card to 60 cents, and a number of the extras are stricken out. Large reductions are also asked in the guide, 10-inch, hoop and cotton tie mills. In rolling nut iron the reduction is 88 cents per ton, and in T-iron 80 cents per ton, while for angles the reduction is 50 cents per ton. Proportionate reductions are asked in the 10-inch and hoop iron scales. In the hoop and cotton tie mills the following clause is stricken out:

Four hundred and ten (410) bundles of cotton tie shall constitute a day's work for every turn in the week except Saturday, and for Saturday three hundred and twenty-five (325) bundles of cotton tie shall constitute a day's work.

Clause 4, reading as follows, is stricken out:

All half ovals below regular gauge, one-fourth (¼) the thickness of its width, shall be paid for as follows, the same to advance and decline as per regular scale:

Size.	Roller.	Heater.	Rougher.	Catcher.
⅜.....	$5.50	$2.75	$1.37½	$1.37½
⅓..	5.25	2.62½	1.31¼	1.31¼
⅝.....	4.25	2.12½	1.06¼	1.06¼
¾.....	2.95	1.47½	.73¾	.73¾
⅞.....	2.50	1.25	.62½	.62½

and this is inserted in its place:

All half ovals below the regular thickness shall be paid for at the same price as bands of same gauge and width.

Clauses 9 and 10, reading as follows, are stricken out:

Where a mill averages over $32 per day a third rougher shall be employed during the months of June, July and August on demand of roller, rougher and catcher. Said extra man shall assist both rougher and catcher, and shall be paid one half by roller and one-half by rougher and catcher.

The night-turn roller shall receive two-fifths (⅖) of the roller's wages on said night-turn.

For rolling pipe iron on sheet and jobbing mills, the price per ton of 2240 pounds has been reduced from $3.40 to $2.50 on a 2-cent card, heater to get one fourth, roller to pay helper and catcher. Pages 20 to 25 containing the sheet mill and black and tin-plate mill scales were not touched upon, but will be adopted as proposed by the Association of Iron and Steel Sheet Manufacturers. In the addenda the following clauses have been stricken out entirely:

Roughing down on bar, structural and 12-inch mills shall be paid not less than thirty (30) per cent. of rollers' wages, to be deducted from rollers' wages.

Roughing up on bar, structural and 12-inch mills shall not be less than forty (40) per cent. of the price paid for catching on such mills, to be deducted from catchers' wages.

Boilers' helpers to receive not less than one-third (⅓) and five (5) per cent. of boilers' wages, to be paid by the boiler.

The following is the proposed scale in full:

Proposed Changes in Scale.

SCALE BOOK 1892.

Page 5:

BOILING.

$4.50 per ton on 2-cent card. Balance in proportion to scale book 1891-92.

Clause 1 on page 5 is all right as in scale book.

Clause 2 is stricken out.

Page 6:

Clauses 3, 4, 5 and 6 are all right as given in the scale book.

7. For cast-iron swarth worked on cinder bottom, the price per ton shall be 80 per cent. of the straight price paid for boiling.

8. For half wrought-iron turnings and half cast-iron swarth worked on cinder bottom, the price to be 70 per cent. of the straight price paid for boiling.

9. For wrought-iron turnings worked on cinder bottom, the price to be 50 per cent. of the straight price paid for boiling.

10. Busheling on cinder bottom to be 45 per cent. of the straight price paid for boiling.

11. Unchanged.

12. For all light scrap worked in a boiling furnace, the price to be 50 per cent. of the boiling price. This to cover hoop No. 10 and lighter, wire No. 5 and lighter, sheet and what is known as Norway scrap; this scrap to be cut from 8 to 10 inches in length for charging.

Clauses 13 and 14 unchanged

15. (New clause.) Mills allowed to make six heats to a turn, and three turns in 24 hours on scrapping and busheling furnace.

Page 7:

MUCK OR PUDDLE MILL.

Clause 2 stricken out.

Clauses 1, 3 and 4 unchanged.

Page 8:

SCRAPPING AND BUSHELING.

Price for piles on boards per ton of 2240 pounds, $1.60 on 2-cent card. Balance in proportion to scale presented in page 8 of scale book 1891-92.

Clause 1 unchanged.

2. Busheling on sand bottom to be 20 cents per ton above the current price for piles on board.

3. Busheling scrap and wrought-iron scrap mixed on sand bottom to be the current price for piles on boards.

4. The price for working all light sheet, hoop, wire and what is known as Norway scrap on sand bottom shall be $2.25 per ton on 2-cent card, and shall advance and decline 5 cents per ton on each one-tenth advance on said card and decline in the same proportion to a 2-cent card. The company shall cut such scrap from 8 to 10 inches in length before charging.

Clauses 5 and 6 unchanged.

Page 11:

BAR MILLS.

Price for bar rolling and heating, 2240 pounds to a ton, 60 cents on 2-cent card. Balance in proportion to scale as presented on page 11 of scale book, 1891-92.

1. All sizes below 1½ x ⅜ inch flats, ⅞ inch rounds and squares, when worked on bar or 12-inch mill, shall be paid for at guide mill prices. One inch round, when worked by hand on a bar or 12-inch mill, shall be paid for at guide mill prices.

Clause 2 stricken out.

Clause 3 unchanged.

Clauses 4 and 5 stricken out.

Clause 6 unchanged.

7. On all bar mills working bar or skelp iron, one man's help shall be furnished by the firm on piles of 180 pounds and over, and an additional man for 250 pounds and over, to shove under at the rolls and all passes. This shall not apply to mills now giving extra help.

Guide, 10-Inch, Hoop and Cotton Tie Mills.

ROUNDS AND SQUARES.

Sizes.	Totals.
7-32.....	.....
¼.....	$5.00
9-32.....	4.20
5-16.....	3.60
⅜.....	3.00
7-16.....	2.70
15-32½.....	2.70
9-16 and up.....	2.40

OVAL.

½ and 9-16 x 3-16.....	$4.20
¾ x 7-16.....	4.00
½ x 9-16.....	3.50
⅝ x ½.....	5.30
⅝ and up.....	2.40

HALF OVAL.

⅝.....	$8.00
½.....	5.00
⅝.....	3.60
¾.....	3.00
⅞.....	2.40

HALF ROUNDS.

5-16.....	$9.00
⅜.....	8.00
½.....	5.00
⅝.....	3.60
¾.....	3.00
⅞.....	2.40

NUT IRON.

5-16 and 23-64 x ¼.....	$5.00
27-64 x ¼ and 1-16.....	7.00
⅜ x ¼ and 1-16.....	8.00
27-64 x 9-64.....	8.00
⅜ x ¼ to 3-16.....	4.80
7-16 x ¼.....	4.80
15-32 x ¼.....	4.00
21-32 x 3 16.....	3.40
23-32 x 3-16.....	3.15
¾ x ⅜ to 3-16.....	3.00
25-32 x 3-16.....	2.80
13-16 x 3-16.....	2.80
⅞ x 3-16 to ¾.....	2.65
15-16 x 3-16.....	2.65
⅛ to ⅝ x 3-16 to ⅜.....	3.50
9-16 x ⅛.....	3.50
1 x 3-16 and up.....	2.40

TEE IRON.

1½ and up.....	2.40
1¼.....	3.60
1-inch.....	4.00
⅞.....	4.50
¾.....	4.50
⅝.....	6.00
1¼ "Y".....	3.50

ANGLES.

1½ and up..... Base.	$2.40
1¼.....	2.75
1⅛ and heavier.....	3.00
1 x ⅛ inch.....	3.25
1⅛.....	2.75
⅞ x ⅛.....	4.00
⅝ x ⅛.....	4.00
⅝ and ½ x ⅛.....	6.00

CHANNEL IRON.

2 and up.....	$2.40
1⅛ to 1⅝.....	2.70
1.....	3.00
⅞ x ⅜.....	3.30
⅞ x 5-16.....	3.50
⅝ x 5-16.....	4.50
¾ x 5-16.....	3.75
⅝ x ⅜.....	4.10
¾ x ⅜.....	3.50

All channels No. 12 and lighter shall be paid for at hoop prices.

10-INCH MILL.

7-16 and ½ rounds and squares.....	$2.70
9-16 and upward.....	2.40
⅝ ovals and up.....	2.40
¾ x ⅝ to 3-16.....	3.00
⅞ x ¾ to 3-16.....	2.65
1 and up.....	2 40
1¾ and up, hoop, x ⅛.....	2.60
2¼ and up to No. 15.....	2.40
Lighter than No. 15.....	2.60
Bands rolled especially for bundling.....	4.25
Billets.....	2.40

LIGHT BAND.

2¼ and up to No. 15.....	$2.40
Lighter than No. 15.....	2.60
1¾ milk-can hoops.....	2.60
1¾ and up to No. 10.....	2.60

1⅛ and 1⅜ x ⅛	2.60
1¼ and 1⅜ x ⅛	3.00
1 x ⅛	3.50
⅞ x ⅛	3.75
¾ x ⅛	4 00
⅝ x ⅛	4.50
13-16 x ⅛	3.90
11-16 x ⅛	4.10
9-16 x ⅛	4 70
½ x ⅛	5.00

Where ⅛ inch in above scale occurs it means to and including No. 11.

HOOP IRON.

	12.	13-18	19 and over.	Present price.
2¼	$	$	$	$
1¾	2.60	3.00	3.20	3.35
1½ and 1⅝	2.60	3.00	3.20	3.50
1¼ and 1⅜	3.00	3.40	4.00	4.10
1	3.50	4.00	4.60	5.30
⅞	3.75	4.50	5.50	5.90
13-16	3.90	4.75	6.00	6.80
¾	4.00	5.00	6.50	7.70
11-16	4.25	5.30	7.00	8.60
⅝	4.50	5.70	8.00	9.50
9-16	4.75	6.40	9.00	10.70
½	5.00	7.20	10.50	12.50

Page 16:

NOTES.

Clauses 1 and 3 unchanged.
Clause 2 is stricken out.

Page 17:
Clauses 5, 6, 7 and 8 on page 17 are unchanged.
Clauses 9 and 10 to be stricken out.

Page 19:

Rolling Pipe Iron on Sheet and Jobbing Mills.

Price, per ton 2240 pounds, $2.50, based on 2-cent card, heaters to get one-fourth; roller to pay helper and catcher.
Pages 20 to 25.
The proposed changes made by the Executive Committee of the Association of Sheet Iron Manufacturers adopted.

Page 26.—Addenda:
Clause 1 is unchanged.
Clauses 2, 3 and 4 are stricken out.

The above scale is now in the hands of the officials of the Amalgamated Association of Iron and Steel Workers at Pittsburgh, and will be considered by them in their sessions, which commenced in that city on Tuesday, the 7th inst. As to what action the Amalgamated Association will take on the scale it is impossible to foretell now, but it is safe to say that it will not be adopted in its present form by the workers without a struggle. When the time comes for the Amalgamated Association officials to confer with the Mahoning and Shenango Valley operators a prominent part in the conferences will be taken by James H. Nutt, who has just been appointed by the manufacturers of the two valleys to take care of their labor matters.

The reports relating to the Philadelphia Manual Training Schools show an increasing appreciation of the value of manual education. The Central School is in its seventh year, the Northeast School in its second year. There were 439 students in the Central School during the school year and 238 at the newer Northeast School. Altogether at both schools there have been enrolled 1262 pupils. Since manual training was introduced into the public schools of Philadelphia, a dozen years ago, there has been constant progress in methods and results. New machines are being added each year and the work steadily increases in importance.

The railroad and transportation interests will be heard before the Committee on Commerce at Washington on the 17th inst., with reference to Congressional action in establishing a uniform bill of lading.

Two new war vessels, fitted with every modern device for defense and destruction, have just been launched on the Tyne for the Brazilian Government.

Current Technical Literature.

The following list of articles on technical subjects covers the most important papers which have appeared in recent issues of current publications, having special reference to the metallurgy or manipulation of iron and steel or related subjects. The names of the periodicals are given, so that if any person desires to secure a copy of an article he can address the publication direct:

Fire-Box Steel. Laminations in steel plates. By P. Kreuzpointner. *The Railroad Gazette*, New York, May 27.

Malleable Iron as it Should Be. Illustrations showing tests which good malleable castings can endure. *The Railroad Gazette*, New York, May 27.

Magnetization Curves of Iron Under Alternating Currents. By J. E. Moore and E. M. Tingley. Illustrations given as the result of experiments based on the method of Dr. Duncan. *The Electrical World*, New York, June 4.

The Modern Marine Boiler. By A. B. Willits, U. S. N. Illustrations given represent one of the main boilers of the U. S. man-of-war New York. *The Engineering Magazine*, New York, June.

Practical Work at a Mining School. By E. S. Cranson. Special reference is paid in this article to the Michigan Mining School at Houghton. *The Engineering Magazine*, New York, June.

Draft Gears for Freight Cars. Read before the New York Railroad Club at a regular meeting, May 19, 1891. By D. L. Barnes. Illustrated. *National Car and Locomotive Builder*, New York, June.

The Iron and Coal Industries of the Continent in 1891. An exhaustive statistical review of these industries from special reports, covering Germany, France, Belgium, Austria-Hungary and Luxemburg. *Iron*, London, May 20.

Engineering Notes on Iron and Steel Manufacture, Mining and Mechanics. By C. M. Percy. The present paper treats on puddling. *The Colliery Guardian*, London, May 20.

By-Products in the Cooking Process. Results obtained from improved ovens. No. 1. *Manufacturers' Record*, Baltimore, May 27.

W. T. Henley's Telegraph Works Co., Ltd. Complete description of these works, illustrated with views of the machinery and processes employed. *The Manufacturers' Engineering and Export Journal*, London, May.

Under-Pinning by Means of Grouting and Stock Ramming. Illustrations of different methods employed. By Walter Robert Kinipple. *Engineering*, London, May 20.

Memoir of Manganese Mines, Pomupo Group. Description of Cuban manganese mines in the Santiago region. Illustrated with a map. *American Manufacturer*, Pittsburgh, May 27.

The Russian Metallurgical and Mining Industries. An article giving official statistics of the production of iron ore, iron and steel for the year ending December 31, 1889. *The Colliery Guardian*, London, May 20.

Annual Statistical Report of the American Iron and Steel Association. A pamphlet of 83 pages, giving complete statistics of the American iron trade for 1891, and preceding years. Published by the American Iron and Steel Association, Philadelphia.

The Development of American Armor Plate. Illustrated with plates showing tests of French and American steel plates. By F. Lynwood Garrison. *The Journal of the Franklin Institute*, Philadelphia, June.

By-Products in the Coking Process. With diagram showing the most important products from Newcastle coal when carbonized by the usual method for the manufacture of coke. *Manufacturers' Record*, Baltimore, June 3.

The Chicago Drainage Canal. Illustrated with maps and cross-sections at various points. *Engineering News*, New York, June 2.

The New Croton Dam for the New York Water Supply. Illustrated with plan of the dam and vicinity, and a cross-section of the dam itself. *Engineering News*, New York, June 2.

The April Issue of "Transactions" of the American Society of Civil Engineers (127 East Twenty-third street, New York) contains the following articles and the discussions upon them: "Availability of the Cañons of the Colorado River of the West for Railway Purposes," by Robert B. Stanton; "Brick Manufacture and Brick Pavement," by F. A. Calkins; "Electric Lighting at Topeka, Kan.," by Lewis Kingman. The first two papers are fully illustrated.

How to Make a Connecting Rod for a 40 Horse-Power Upright Engine. Forging all done by hand, as there were no power hammers. Drawings showing how work was done. Terrance McMahon in *Blacksmith and Wheelwright*, New York, June.

Tangential Water Wheel Test. Description of test of one of Dodd's tangential water wheels at Amador City, Cal. Method of making test and results given. *Industry*, San Francisco, May.

Compound Locomotive for Grade of 575 per Mile. Perspective, detailed description and dimensions. *Locomotive Engineering*, New York, June.

Indicating the Engine on the Fastest Train in the World. Cards taken on the Empire State Express on the New York Central Railroad by Angus Sinclair. *Locomotive Engineering*, New York, June.

The Failure of Navy Boilers. Editorial in *Engineering*, London, May 20. The subject of the failure of British naval boilers discussed very fully.

Electricity on a Southern Farm. Describes the plant and the farm implements driven by electric motors. Illustrated. The *Electrical Engineer*, New York, June 1.

Erecting the Kentucky River Bridge, at Irving, Ky. Describes, with the aid of drawings, the method pursued. John H. Pearson in *Engineering News*, New York, May 26.

Electricity in a Modern New York House. The electrical appliances in the residence of the well-known electrician Edward H. Johnson are described in detail. Engravings of principal features. The *Electrical Engineer*, New York, May 25.

Ore Separator Suit.

Suit has been brought in the United States Circuit Court of New Jersey by the Magnetic Separator Company, operating under the Ball Norton patents, against the International Ore Separating Company, a New Jersey corporation, having their principal place of business in Jersey City, for infringement of patents granted to Clinton M. Ball and Sheldon Norton.

The bill of complaint sets forth that the Ball-Norton separator embodies the principle of forcing a body of magnetic ore in a state of division past a series of magnet poles of alternating polarity, which causes the magnetic particles of the ore to rotate or tumble end over end, thus magnetically stirring the mass and thoroughly shaking out and eliminating the gangue. Prior to the development of the Ball-Norton machines hundreds of inventions relating to magnetic ore separators had been made and patented in this and foreign countries, but it is stated in the complaint Ball and Norton were the first to invent and introduce a commercially operative magnetic ore separator and to successfully practice the art of magnetically separating iron from its ores, and without these inventions it would be impossible to-day to conduct the operation with sufficient precision and rapidity to render ore separators of commercial value.

In the infringing apparatus with which the International Ore Separating Company operate the distinctive principle of the Ball-Norton patents is involved, hence the bill of complaint asking for an injunction and damages.

THE WEEK.

Five hundred men are at work on the Nicaragua Canal, and about one mile has been excavated. Since the beginning, four years ago, $5,000,000 has been expended.

Canadians wish to come to some arrangement with the United States respecting tolls on the Welland Canal, and the suggestion has been made that they would gladly accept the co-operation of this country in making a capacious ship canal for joint use.

The name California (hot furnace) was given by Cortez to Lower California and a part of Arizona about the year 1535.

The consumption of coal each day by steamers forming the lines between Boston and English ports is stated as follows:

Lines.	Tons.
Cunard	40 to 90
Warren	42 to 48
Allan	40
Leyland	47
Johnston	30 to 50
Wilson	40

Judgment was entered in Philadelphia on the 1st inst., in Common Pleas Court, by the Bethlehem Iron Company against Edward R. Wood in a suit brought to recover the amount of three promissory notes aggregating with interest $64,246.95.

The annual report of the directors of the Suez Canal Company shows that during the past year the traffic through the canal has increased 1,807,268 tons. The directors announce their intention to make a further reduction of 50 centimes in the tolls, beginning January 1, 1893.

Iron ships are sometimes struck by lightning. The Mallory line steamer Texas when off Hatteras received a stroke which destroyed the topmast and played around the machinery, but passed off without doing further injury.

A fund of $100,000 for the establishment of a trade school in Detroit having been secured, the subject is being considered at a series of public meetings.

The floating equipment or the navy of the Pennsylvania Railroad Compay includes ferry boats, tugs, car floats, steam lighters, barges, canal boats, dump scows, flats and dredges; in all 155 in the fleet. The figures in regard to ferry transport show that ferry boats between New York and Jersey City during the year made 163,771 trips, carrying 18,719,859 passengers.

Preparations are maturing for the proposed permanent exposition of the products of Mexico, to be opened in Industrial Hall, Forty second street and Lexington avenue, this city, after the Columbian Exposition is over. The director-general, F. G. Canton, who has recently returned from Mexico, says that President Diaz has instructed the Secretary of the Interior and the Minister of Agriculture to communicate with the Governors of the various States to make arrangements by which the industries of every State in Mexico shall be fully represented in New York, and a constantly changing series of products be sent here.

Two British gunboats for service on the inland lakes of Africa will ascend the Zambesi and Shiri rivers, as soon as the depth of water permits, this coming autumn.

In Congress the Immigration Committee, both in the Senate and House, have decided to report favorably a bill to facilitate the enforcement of the immigration and contract labor laws. The principal features are: To require the steamship companies to prepare on the other side of the ocean descriptive lists of immigrants, and to present these lists to the Immigrant Inspectors in this country on arrival, and to require the inspector first examining an immigrant to detain him for special inquiry unless it is clear that he has the right to come in.

British traders have established a post on one of the branches of the Niger, 26 days from London by steam, completely underselling the Arabs, who have been accustomed to send caravans of camels to the same destination after a year's travel from Northern Africa.

A class of 35 young mechanics in the normal training school at Cleveland gave an exhibition last week, attracting a large attendance. After two years of application they are now ready to enter the machinery department.

Pittsburgh claims 8000 increase of population within a year.

Engine and ship builders notice with satisfaction that the new cruisers Atlanta and Chicago both return, after long voyages, in prime condition, acquitting themselves well in all the vicissitudes of weather. Their seaworthiness is proved.

A cable dispatch from London orders a partial resumption of the work on the Chignecto Ship Railway, connecting the Bay of Fundy with the Gulf of St. Lawrence.

Work on the East River tunnel of the New York and Long Island Railroad Company was begun on Friday in Long Island City. It is expected that the tunnel will be completed in two years.

Last year, while the United States imported flax products worth $20,000,000, our farmers destroyed 1,070,000 tons of flax straw, the seed only being used in the manufacture of oil. Inventors are busy, however, and it is now claimed that by a newly invented American machine flax straw can be converted into prepared fiber far more rapidly than it can be done in Europe.

The Census Bureau has issued a bulletin showing the assessed value of property in the United States in 1890 to be $24 651,585,465. The increase during the decade is $7,748,591,722, or 45.84 per cent.

The Germans in East Africa will introduce Chinese laborers to cultivate tobacco, the first harvest having been successful.

The Wolfley irrigation canal in Arizona will be 76 miles long, and open to cultivation 300,000 acres of land heretofore part of the desert.

The coal miners' strike in England, which began March 12 and embarrassed many iron works, ended last week by the men accepting 10 per cent. reduction of wages. They now see that it would have been far better for them had they accepted the reduction at once and waited until trade should again revive to secure a restoration of rates.

The Reading officials attach little importance to the latest movements tending to invalidate the lease of several roads now in the combination. It is declared that the whole question is as to the status of the Port Reading Company, the lessee of Jersey Central. If that company is a New Jersey corporation and is controlled by residents of that State, it has the right under the laws of New Jersey to lease the Jersey Central.

The Government prohibition against the entry of rolling stock from Canada unless duties have been collected is limited to locomotives. It is declared that "No foreign locomotive shall be employed for the continuance of the inward trip unless such locomotive shall have been duly entered for duty in the United States." Locomotives are allowed to enter free of duty to complete a run, but not to be used in internal traffic in this country.

Advices received in this city from Venezuela are to the effect that all business there is paralyzed by the civil war. The coffee trade is ruined, and foreign as well as domestic commerce is at a standstill. The revolutionists have every facility for supplying themselves with arms at Maracaibo, which is in their possession. Railroads and coffee plantations have suffered severely. A telegram says the Government has been disastrously defeated in a pitched battle.

The Bethlehem Iron Company sent their first consignment of armor plates for the battleship Indiana to Cramps' shipyards on the 2d inst. There were four plates shipped, with an aggregate weight of 100 tons They are 12 x 6 feet and 15 inches thick. They are worth about $75,000. The plates were forged by the 125 ton steam hammer.

The New York Chamber of Commerce have passed resolutions condemning the Chinese Exclusion act. Such an expression may mollify the feeling at Pekin and counteract any desire to make reprisals affecting American subjects.

The Fassett prison law in this State seems to be working more satisfactorily than many expected. Auburn has turned in to the State treasury as the proceeds of prison labor $100,000 and Clinton $75,000.

A Correction.

TORONTO, ONT., June 3, 1892.

To the Editor: In your article on "Canadian Iron News" in *The Iron Age* of 2d inst., page 1080, in speaking of the ore from the Belmont mine, you say: "The phosphorus shows from a faint trace to 0.229." This is a mistake. The highest phosphorus given in the mine analyses published in my pamphlet is 0.029. This analysis was made by the chemist of the Joliet Steel Company in 1887 and was not from any picked samples, but from an average of samples taken from all over the deposit. Samples taken from the bottom of No. 2 pit at the same time gave phosphorus 0.006. The average of the first 13 analyses as published by the Belmont Bessemer Ore Company gives metallic iron 66.23, phosphorus 0.013, sulphur 0.0161, silica 3.88. Yours truly,

T. D. LEDYARD.

At the annual meeting of the stockholders of the William Cramp & Sons Ship and Engine Building Company the following directors were elected: Charles H. Cramp, William M. Cramp, Samuel H. Cramp, Jacob C. Cramp, Henry W. Cramp, Frederick A. Griscom, Thomas Dolan, Benjamin Brewster and Henry Seligman. After the election the following officers were chosen: Charles H. Cramp, president; Benjamin Brewster, vice-president, and Henry W. Cramp, secretary and treasurer.

The fastest passage between New York and Queenstown, both eastward and westward, was made in the latter part of 1891 by the steamship Teutonic of the White Star line. The fastest passage from Queenstown to New York was made in August, being 5 day 16 hours and 31 minutes. The fastest passage from New York to Queenstown was made in October, being 5 days 21 hours and 3 minutes.

According to J. W. Richards, the addition of a mere trace (0 08 ounce) of aluminum to a ton of zinc makes a galvanizing base which insures a highly crystalline and permanently brilliant and adhesive coating.

The Iron Age

New York, Thursday, June 9, 1892.

DAVID WILLIAMS, - - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - - EDITOR.
GEO. W. COPE, - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - HARDWARE EDITOR.
JOHN S. KING, - - - - BUSINESS MANAGER.

The Western Floods.

This year has made such a wretched record that it will long be memorable for its storms and floods. Week after week has passed with the dismal tale of storm-beaten States and overflowing Western rivers continuing like a serial. Every fresh chapter, too, tells as bad a story as its predecessors. The spring rains, which were only pleasantly plentiful at first and were welcomed as the harbingers of bountiful crops, have become a veritable deluge by their persistence, and thus one of Nature's choicest blessings has, by its exuberance, been turned into a calamity. Never before has so large a section of the country been so storm swept. Rivers notorious for overflowing their banks have surpassed all their previous misdeeds. Creeks have been swollen into mighty rivers. Towns supposed to be high above any possible danger have been overflowed by sudden freshets, and a general feeling of insecurity prevails among those who live on the borders of streams. Cyclones and tornadoes have added their terrors to the ravages of the rivers and phenomenally cold weather has prevailed to further disconcert poor humanity. Numerous lives have been lost as a direct result of the direful sport of the elements, and the losses to property along the Mississippi and its tributaries are estimated at upward of $50,000,000.

The past week has seen the storm area extending into the East, causing heavy damage to property in that section also. The East was scourged with such a visitation in 1889, and the horrors of Johnstown have just been repeated at Titusville and Oil City, with the additional awful accompaniment of destructive fires from floods of burning oil floating on top of the swollen river.

Perhaps the worst feature of the Western storms has not yet been felt. It is asserted that in broad sections of several States the farmers will be unable to raise any crops this year, as the season is now too late for planting. Fields were planted, then ruined by excessive rains and replanted, only to be ruined again. If the gloomy forebodings of the farmers are true, the full force of the unfavorable conditions will be felt next fall and winter. In that event the loss to the country will be vastly more than the enormous figures above given. Fortunately, our country is so large and its climate so diversified that there is but little danger of any scarcity of food, scantiness in one part being easily supplied by the bountiful yield in others. The most serious result to be expected is the disturbance to trade which is consequent upon material injury to the interests of choice parts of our national garden.

The Turner Cotton Tie Bill.

English papers are now coming to hand with comments on the passage by the national House of Representatives of the Turner bill to place cotton ties on the free list. They are, of course, well pleased with this legislation. One of them says: "This repeal of the duty — which under the act of 1883 was as much as 35 per cent.—should greatly stimulate our British hoop-iron and steel trade with the United States, and the prospects are such that English iron and steel masters may well be hopeful. We have already said that the act of 1890 had a serious effect upon the English hoop-iron and steel imports into America, and as an illustration of how marked that effect was, we may mention that in consequence of the measure the annual value of our shipments of that description fell from over £90,000 to £5000. Even the former figure was under a 35 per cent. duty, and if this is abrogated, we may fairly hope not only to return to our previous record, but to surpass it. Of course before the bill just passed becomes law it will have to receive the sanction of the Senate and of the President, and it is in these stages that the chief difficulty ahead lies." The last sentence is well put. We would advise our readers in Great Britain not to incur much expense at present in preparing to supply the demand in America for cotton ties. The passage of the bill through the House was a very important step taken, it is true, toward making cotton ties free of duty; but from all appearances it is likely to make no further progress for at least some months. Meanwhile the consumers of cotton ties are placing heavy contracts with American manufacturers for the coming season, evidently having no faith in the success of the efforts made to repeal the duty.

Reservoirs and Levees.

Engineers are earnestly discussing whether any means can be devised which will effectually control the enormous volume of waters periodically sweeping down the valley of the Mississippi from the sources of supply in the far North. There is a common agreement in the opinion that the effects of these annual freshets have been aggravated by denuding the lands bordering on the great Western water shed of their forests, and one remedy proposed is to promote forestry—in other words, to restore the lands that have been cleared of forests to their primitive condition. The feasibility of such a scheme may reasonably be called in question, although a general sentiment in favor of arboriculture beyond a doubt might result in mitigating to a perceptible degree the damage caused by swollen streams and rivers. The relief possible from the partial restoration of thef orests, it will be conceded, can only be realized somewhere in the remote future. Moreover, the annual June rise in the upper Missouri and upper Mississippi rivers is in part due to stupendous processes of nature taking place in the Rocky Mountains when the accumulated ice and snow of a long winter become dissolved, and with which all human agencies are impotent to contend. The St. Louis representative of the Weather Bureau says: "The snow accumulated in this way usually begins melting about the middle of May, and the first effects of the rise in the Missouri, caused by the swelling of its numerous mountain tributaries, begin to be felt in the Mississippi below the mouth of the Missouri about the 22d or 23d of that month. Usually by that time the spring freshets in the Mississippi Valley are over, but this year the recent great floods, supplemented by the heavy rains which have followed and are still threatening, have put the river far out of its banks."

Obviously, the plan of reforestration, however diligently prosecuted with the object of absorbing the rainfall, and however efficacious, must prove ridiculously inadequate to grapple with a problem like that here presented in the ordinary course of meteorological events. Especially is this conclusion warranted when we consider that disastrous floods occurred in the West long before the forests were destroyed.

Other schemes to prevent or in some measure control the annual overflow in the West are known as the reservoir system and the levee system, which have respectively earnest advocates among prominent engineers. The former is based on the idea that numerous lakes at the headwaters of our principal rivers may be converted into immense storage basins, available in times of drought as an aid to navigation after having already served a purpose in keeping in reserve immense bodies of water which naturally would have caused havoc in their rush to the sea. Captain Leach of the United States Corps of Engineers, in charge of Government work on the lower Mississippi, and who a year ago gave valuable testimony before the House Committee on River Improvements, is of the opinion that levees are the only remedy for overflows. He points out that these dykes serve a double purpose, not only being in the interest of commerce, but constituting the most certain and most reliable defense. The States in the lower Mississippi Valley are said to have spent over $75,000,000 in building levees, but as losses from inundation continue on a disastrous scale the inference is unavoidable that this system alone is inadequate. From the costly experience of the present season it seems probable that discussion will continue until all means promising relief have been thoroughly examined into, indications meanwhile pointing to the necessity of building levees and dykes upon the most approved plan, and without needless delay, wherever valuable riparian property is exposed.

The great coal miners' strike in England, which is one of the most important occurrences of the year in the foreign iron

and coal trades, was terminated last week. It began on the 12th of March, hence it continued nearly three months. The men have been signally defeated, after having endured untold privations and after having seriously demoralized the iron trade of the north of England. It will be remembered that at first the strike embraced nearly all the English coal miners, but very quickly the majority of them succumbed and the Durham miners were left to carry on the contest alone. They fought with a persistence worthy of success, but the general condition of business was against them, and now they have been compelled to accept a cut of 10 per cent. in their old rate of wages. This is not a good year for strikes on either side of the Atlantic.

International Iron and Steel Prices.

Almost concurrently a great deal of valuable statistical information has recently appeared. The report of the American Iron and Steel Association, the *Journal* of the Iron and Steel Institute and special contributions from authorities in various countries to London *Iron* have been important additions to the statistical and technical literature of the iron and steel trades. From these several sources we have drawn a number of very interesting statements and comparisons. In presenting them, however, more attention will be given to prices than has hitherto been the case in considering international statistics. For years all American prices were so high, the highest in the world, that unless there was a special desire to emphasize that point, a comparison with those of other countries was useless. In fact, the disparity was so great that there was no comparison. Now, however, partly through the stress of circumstances and partly through the skill and genius of American manufacturers, aided by great natural resources, our prices are assimilating to a noticeable extent with the prices of iron and steel products in other countries. There are some branches in which even now other countries report higher prices than the United States. Only a few such instances can be shown, it is true, but they are enough to indicate the tendency of this period of the world's industrial history.

The United States and Great Britain being the leading iron-producing countries, a comparison of prices prevailing in them forms an appropriate introduction to this subject. Two periods are taken, one being the severe depression of 1885 and the other the present equally depressed time. The figures are as follows, per gross ton:

Articles.	April, 1885.	May, 1892.
No. 1x anthracite foundry pig iron, at tidewater, United States	$17.50	$15.50 to $16.00
No. 1 Scotch pig iron, f.o.b. shipping port	$10.40 to $12.00	10.66 to 13.00
Gray forge pig iron, Pittsburgh	14.00	12.75
Cleveland (Eng.) mill iron, f.o.b.	7.94	9.36
Bessemer pig iron, Pittsburgh	17.00	14.00
English Bessemer pig, f.o.b.	10.69	12.15
Refined bar iron, Pittsburgh	33.60	35.84
Staf. com. marked bars, f.o.b.	27.34	30.96
Steel rails, at mill in Pennsylvania	26.00	30.00
English steel rails, f.o.b.	23.17	19.44
Steel billets, Pittsburgh	....	22.25
English steel billets, f.o.b.	....	20.04
Steel wire rods, Pittsburgh	....	32.00
English steel rods, f.o.b.	....	32.19

It will be observed that in some instances prices are higher now than in the depression of 1885, while in others prices are lower, owing to the operation of special causes. The great coal miners' strike in England, for instance, has evidently caused the higher prices for British pig iron quoted for the present period. Gray forge pig iron at Southern furnaces in this country is now selling at $8.75 to $9, which is below the price of Cleveland gray forge in England. Welsh furnace coke is selling at $4.73, gross ton, f.o.b., as against $1.90, net ton, or $2.13 gross ton, for Connellsville coke.

In Germany a combination of the steel-rail manufacturers forced prices in 1890 to a maximum of $40.46 per metric ton (2204 pounds), but, encountering at length the opposition of the Government, prices were gradually forced down, until $27.37 was touched in the latter part of last year. During 1891 German forge pig iron fluctuated between $12.13 and $12.61, Bessemer pig $13.80 and $15.47, and foundry pig $16.42 and $17.37. The coke syndicate at Bochum maintained the price of foundry coke at $3.09 to $3.33 per ton throughout 1891, but have since then made some concession. Steel wire rods are now quoted at $26.65 per ton at Westphalian works. It may be stated, in passing, that the Thomas-Gilchrist basic-steel patents have expired in Germany.

Information concerning French prices is rather meager. In April, 1891, foundry and forge pig iron in the Meurthe et Moselle sold at $12.92 and $11.40, respectively, per metric ton, and bar iron and beams at Paris were sold at $32.30 and $34 20. In August bar iron was reduced to $30.40 and beams declined to $32.30, where they have since remained. The French iron market has been singularly stable for some time, participating to a very slight degree in the fluctuations which have characterized the iron trade of other countries. The domestic production of iron and steel seems to be well adjusted to the requirements of the French people.

Belgian prices are very low on manufactured iron, but not on pig iron. The following prices, per metric ton, are published as prevailing on April 1, 1892:

Bessemer pig iron	$13.77
Basic pig iron	11.40
Charleroi forge pig iron	9.50 to 10.45
Steel rails for export	20.90
Merchant bars for export	21.85
Ditto for home consumption	22.80 to 26.60
Beams for export	21.85
Ditto for home consumption	22.80 to 23,75
Ship angles	24.70
Furnace coke	2.47

In this connection the following is an interesting item of news, taken from a recent foreign exchange:

The Belgian iron market has become firmer for home consumption since the syndicate of ironmasters was rehabilitated. Although the agreement has been signed by all the ironmasters, still some important points have not yet been arranged. First of all, the money to be deposited as a guarantee that the rules will be followed has not yet been placed in the hands of the committee; this is an important point, as the fact of this precaution not having been taken the last time the syndicate was formed was to a great extent the cause of its dissolution.

The formation of the syndicate of plate-makers is almost sure to take place before long, as prices of plates have fallen so low that they are nearly under those of [bar] iron.

Rumors have again been afloat regarding an agreement which, on the strength of paragraphs which have appeared in some German papers, is said to exist between the German and the Belgian rail syndicates, but the Belgian convention knows nothing of such an understanding, and has never received the 150,000 francs which the German syndicate is said to have been obliged to pay yearly, in order to prevent the Belgian steel works' convention competing in Germany.

The price of pig iron in Luxemburg in 1891 ranged from $9.02 to $9.35 per metric ton for forge, $10.61 to $10.75 for foundry and $9.40 to $9.88 for basic. With these prices for their products one furnace company paid a dividend of 15 per cent., another paid 7 per cent. and added largely to their reserve fund, another paid 10 per cent., and another 5 per cent.

In Austria-Hungary steel rail quotations were high during 1891, having been maintained by a syndicate at $36 per metric ton. The minimum price of charcoal Bessemer pig iron in 1891 was $20.16, of coke pig iron $15.48, of Bessemer ingots $28.80, and of beams $41.40.

In glancing over these figures it will be seen that prices in the United States are approaching the level of those in other iron-producing countries. This, of course, has thus far only been done in times of great depression in trade on this side of the Atlantic. But, except through combinations, our prices do not recover all their lost ground when trade revives. The next period of depression will carry them still lower than now in all probability, and the time seems destined to come when our prices will be nearly if not altogether as low as those abroad.

The Barondess Decision

A man named Joseph Barondess for many months terrorized the cloak manufacturers of New York City, whose employees, for the most part, were ignorant not only of the laws but the language of this country, and of whom Barondess seemed to have complete control. A sign from him was sufficient to cause all hands to vacate a shop or to return, regardless of remonstrances or persuasions of those by whom they were employed. Scenes of violence were so frequent as to require the

active interference of the police for the preservation of public order. At last Barondess was convicted of extorting money from a firm, under a threat that unless the sum demanded was paid all hands would go out on strike. The sentence was a term in the penitentiary, and on an appeal to the higher courts the judges differed in their opinion, the view being taken on the one side that extortion, within the meaning of the law, signified actual injury to persons or property, while on the other side it was contended that no such case was presented in the trial referred to. The Court of Appeals decided that a threat to call out employees on strike comes within the meaning of the statute, and so Barondess apparently had no alternative but to submit to the penalty. But the petition of over 60,000 persons was sufficient to influence Governor Flower to grant a pardon. This act of clemency, however, does not change the decision of the court, according to which many others are guilty and equally liable. Future offenders will scarcely get off so easily. At the same time other decisions may be necessary before the exact scope of the law is finally determined.

Western Wages Question.

Last week the two committees of the Amalgamated Association of Iron and Steel Workers met in Pittsburgh to prepare the iron and steel wages scales for the years 1892–3. It was expected that these scales would be completed and ready to present to the general convention of the Amalgamated Association which convened in Pittsburgh on the 7th inst. Heretofore it has taken from two to three weeks for the general convention to finally decide on a scale, and no doubt as long a time or more will be required this year before the two scales are ready for presentation to the manufacturers. The custom heretofore has been to prepare the wages scale for rolling mills first and follow this with the steel scale. The same course will probably be pursued this year.

From Pittsburgh we have information that the arrangement of a new scale to govern wages at the Homestead Steel Works of Carnegie, Phipps & Co. is not progressing as smoothly as was expected. It is understood that the reason for this is that the firm have made large reductions in the scale which the men are not willing to accept. As is well known, wages at the Homestead Steel Works are based on 4 x 4 inch billets, the minimum price being put at $25 per ton. Owing to the depressed condition of the steel business Carnegie, Phipps & Co. have decided to reduce this minimum price, and $22 has been named as the minimum price below which wages are not to go. As billets have been hovering around the $22 mark for some time this means a clear reduction of about 17 per cent. to every man who works by tonnage. In addition to this other large reductions are made, in some cases over 25 per cent. As the scale now in force does not expire until June 30 there is still time for a settlement to be arrived at between the firm and their employees, but in view of the large reduction demanded by the firm a disagreement is not improbable. The men claim that they are well aware that the iron and steel business is very much depressed at the present time, but that this depression does not warrant such a large reduction being made in their wages as has been demanded by the firm. A number of conferences have been held between a committee of the workmen and representatives of the firm, but it is understood that just now the views of these two committees are very far apart as to what would constitute an equitable scale. As the firm have notified their workmen that they must sign the new scale on or before June 24, it will no doubt be known by that time whether a strike will take place or not.

Trade Journals and the Grant Monument.

The following is the list of contributions received by the sub-committee on trade journals of the general committee of the Grant Monument Association, of which sub committee David Williams of *The Iron Age* is chairman, and Charles T. Root of the *Dry Goods Economist*, treasurer:

David Williams, *The Iron Age* and associate publications	$100.00
Employees of *The Iron Age*	46.25
Wm. O. Allison, *Oil, Paint and Drug Reporter* and *Druggists' Circular*	100.00
Employees of the *Oil, Paint and Drug Reporter*	17.00
Charles T. Root, *Dry Goods Economist* and *American Exporter*	100.00
A. E. J. Tovey, *Brewers' Journal*	50.00
George P. Rowell, *Printers' Ink*	50.00
Employees of George P. Rowell & Co.	24.83
Howard Lockwood, Lockwood Press	50.00
Scientific American and employees	34.00
G. W. Whittemore, *Crockery and Glass Journal*	25.00
F. E. Saward, *Coal Trade Journal*	25.00
Gallison & Hobron Company, *Hatter and Furrier*	25.00
R. R. Bowker, *Publishers' Weekly*	25.00
Engineering News	10.00
C. C. Hine, *Insurance Monitor*	10 00
Employees of the *Insurance Monitor*	2.00
Industrial Record Company	10.00
Jewelers' Circular Publishing Company	10.00
Hardware	10.00
C. E. Bartholomew, *American Art Printer*	5.00
Price Current Company	5.00
American Grocer	5.00
Employees of *American Grocer*	5.50
Employees of the *Dry Goods Chronicle*	3.00
Total	$747.58

OBITUARY.

ROBERT J. ANDERSON.

Robert J. Anderson of the firm of Anderson, Du Puy & Co., proprietors of the Pittsburgh Steel Works, at Pittsburgh, Pa., died at his home in the East End in that city on the 2d inst. Mr. Anderson had been a sufferer from dropsy, but the immediate cause of death was prostration following an operation.

He was the son of John Anderson and Elizabeth Dravo, and was born on Duquesne Way, Pittsburgh, on April 18, 1827. In 1850 Mr. Anderson was employed by Schoonmaker & Updyke, wholesale druggists, and in 1857 became a partner of Philip Reymer in the candy manufacturing firm of Reymer & Anderson. In 1862 he became a member of the firm of Chess, Smythe & Co., tack, nail and iron manufacturers, where he remained four years, when he bought the Jones & Boyd steel works at Second avenue and Ross street, organizing the firm of Anderson, Cook & Co., with Joseph Cook, Robert and William Woods as partners. Later, through changes in membership, the firm became Anderson & Woods, Anderson & Passavant and Anderson & Co. The name in 1878 was Siemens, Anderson & Co., and the plant now known as the Linden Steel Works was purchased and experiments made in the direct process. In 1882 Mr. Anderson failed for $1,500,000, through the forgeries of a business associate in the Brooklyn Bridge contract. In the next year he organized the firm of Anderson, Du Puy & Co., and was granted the use of the Siemens process for ten years without royalty by the great inventor, as they were the first to adopt the Siemens furnaces.

Mr. Anderson was a director of the Dollar Savings Bank and formerly was president of the City Insurance Company, both of Pittsburgh. With Andrew Carnegie the Atlantic and Pacific Telegraph Company was organized and subsequently sold to the Western Union. He drove the silver spike celebrating the completion of the Union Pacific Railroad. He struck the first natural gas well above Pittsburgh while drilling for water on Boyd's Hill.

Mr. Anderson was married to Miss Julia Gibson, who died in 1862. His life insurance at one time amounted to $280,000 and at the time of his failure $225,000 in policies was turned over to the Merchants' and Manufacturers' Bank.

JOHN WILLIAMS.

The Lehigh Valley lost one of its most prominent citizens in the death of John Williams, which occurred at Catasauqua, Pa., on the 24th ult., after a lingering illness. Mr. Williams was born in Landore, Wales, November 20, 1824. When a little over eight years of age he came with his parents to America, the voyage in an old packet vessel occupying some nine weeks. The family first located in the neighborhood of Schenectady, New York State, and remained there until 1840, when the father removed to Craneville, now Catasauqua, where he died in 1845. John, when a boy of 14, entered a store in Schenectady, where he remained some five or six years. In 1845 he followed the rest of the family, who were then living in Catasauqua, and at once entered the office of the Crane Iron Company. Upon the death of Owen Rice, in 1856, Mr. Williams succeeded to his position as cashier.

The Catasauqua of 40 or 50 years ago was more like one great family than like a community of diversified interests. It was ruled by one master-mind—that of Father Thomas. The young men of the town were his boys, and he watched over their interests with fatherly care. For John Williams especially he evinced peculiar affection, and for many years entrusted to him the care of a greater part of his business, and when he died he made Mr. Williams one of his executors and trustee of his estate, and well was the trust so reposed fulfilled. The entire work of settling up the estate was left to him, and most thoroughly and efficiently has it been executed, the last signature he made on his deathbed being to close up the only unfinished part of the settlement of the estate. He was one of the originators of the Catasauqua Mfg. Company, and an officer of that large corporation at the time of his death. He was a director in the Catasauqua Gas Company for years, and at the time of his death was president of the corporation. He was also a director in the Lehigh Valley Trust and Safe Deposit Company of Allentown, and president of the Farmers' Fire Insurance Company of Upper and Lower Saucon Township, whose office is at Bethlehem. In 1863 he succeeded David Thomas, Jr., as a director in the Catasauqua Bank, remaining as an official after it became a national bank, and at the time of his death was vice-president of the institution. He was married to Miss Emma C., daughter of the late Rev. George Heilig, September 14, 1852, and had eight children, four of whom survive, Mrs. Frank M. Horn, Mrs. Edw. D. Boyer, and John T. and George H. Williams. The same untiring interest that Mr. Williams manifested in his business career he also showed in his church relations. He was an earnest worker in the cause of religion, having been an elder of the First Presbyterian Church for 20 years.

HENRY LIGHT.

Henry Light died at Lebanon, Pa., on the 26th ult., aged 60 years. He was one of the pioneers of the iron and rolling mill business in Lebanon County. He was a native of the county, and from his youth had been identified with the iron industry. He began as manager of the Stony Creek Iron Company, which is now known as the Ellendale Forge, in Dauphin County. After serving a term of usefulness there he undertook the management of the Newmarket Forge, in copartnership with Mr. Early, with the firm name of Early & Light. A few years thereafter this partnership was dissolved, Mr. Early withdrawing from the firm. The business was, however, continued by Mr. Light associated with his two brothers. The forge continued running under their management until 1867, when the Lebanon Rolling Mills, which has become one of the chief of Lebanon's industries, were founded in part by him. He leaves a wife and family of nine children to survive him, among them Samuel E. Light, the present manager of the Lebanon Rolling Mills.

CALEB S. MALTBY.

Caleb. S. Maltby formerly of New Haven, died at his residence in Greenwich, Conn., on the 2d inst., aged 82 years. He leaves a fortune of $3,000,000 made almost entirely in the oyster trade. He went to Baltimore in the early days of the oyster business and became rich. He was the owner of the Maltby House in Baltimore. For years he owned and operated a charcoal blast furnace in Dutchess County, N. Y.

A Mahoning Valley Labor Commissioner.

Jas. H. Nutt of Youngstown, Ohio, who for years has been a prominent official of the Amalgamated Association, and, if we mistake not, a vice president for some years, has just been appointed by a number of the largest bar-iron makers in the Mahoning Valley to have full charge of their labor matters. As is well known, disputes often arise in mills as to the interpretation of certain rules of the Amalgamated Association, which cost no little annoyance and loss of time. The desire of the manufacturers to get rid of the annoyance and loss of time, as far as possible, has resulted in the appointment of Mr. Nutt, who will have all these matters in charge. When a dispute arises between a firm and the Amalgamated Association the firm in question will be represented by Mr. Nutt, who will have full authority to settle the matter. It is also expected that Mr. Nutt will take a prominent part in the conferences which will be held soon between the Mahoning and Shenango Valley manufacturers and the Amalgamated Association regarding the proposed wage scale, which we print in another part of this issue. Mr. Nutt's position with the Mahoning Valley iron manufacturers is identical with that which has been held for some time by Wm. Martin, formerly secretary of the Amalgamated Association, but who now has full charge of the labor matters of the Carnegie interests at Pittsburgh.

A number of capitalists in the Northern Pacific Railroad Company contemplate building in England a number of whaleback steamers to compete in the ocean carrying trade across the Atlantic. These new ships will be built after models sent out by the American Steel Barge Company of West Superior, and will probably all fly the English flag. When the whalebacks are built the Northern Pacific Railroad will have nearly a complete route from the States of Washington and Oregon to Europe. Their railroad runs from the Pacific to Duluth, and by a leased line, the Wisconsin Central, also enters Chicago.

CORRESPONDENCE.

The Wire Gauge.

To the Editor: It may be within the limit of reasonable correspondence to again offer a few remarks on the subject of the wire gauge from the standpoint of recent communications. The micrometer is advanced with much emphasis as to its accuracy and minute adjustable gradations, and these points are fully borne out in practice where conditions admit of plenty of time to use it, but the operations of the artisan have in most cases to be rapid, and frequently of such a nature that it cannot be used with dispatch—as, for instance, on a red-hot plate 10 x 6 feet x ¼ inch. Hence gauges are indispensable. Every screw, such as a plate mill screw, has in itself the exact principles of a micrometer, or, rather, the micrometer is an adjustment of the well-known principle of the division of the circumference of the screw.

The gauge generally used for wire is not the Birmingham or the Brown-Sharpe gauge, but another gauge still, which is called the Imperial gauge. I am informed that this gauge came into existence as the result of a convention of experts from several different countries—America, England, France and others being represented. Its decimal equivalents are different from those used for other purposes. Judging from my own observations, the lack of uniformity is as incongruous in this sphere as in any other. I annex a few examples:

Birmingham.		Imperial.	
No.		No.	
4	= 0.238	4	= 0.232
7	= 0.180	7	= 0.176
11	= 0.120	11	= 0.128
16	= 0.065	16	= 0.064

As I before indicated, uniformity is the one thing above all others most needed, and these examples prove it. If there is any practical good to come out of all these remarks it becomes pertinent to ask, How can a gauge of 40 numbers, or thereabout, with ½ inch for a maximum, be adjusted out of 500 divisions of said ½ inch? I hesitate to attack the problem, but there may be some one who would find this the exact kind of puzzle to suit his genius. If he succeeds so well as to secure not only a legal American, but a universal gauge, he will rank among the benefactors of workingmen. Yours respectfully,

JOSEPH PARKES.

WEST SUPERIOR, WIS., May 28, 1892.

PERSONAL.

Prof. J. J. Flather, in charge of the senior class in mechanical engineering, from the Depauw University, on the 24th of May made a tour of the more prominent machine shops at Cincinnati and Hamilton, Ohio. Among those visited were the Lodge & Davis Machine Tool Company, J. A. Fay & Co, Egan Company and Niles Tool Works.

E. A. Barnes, who for more than 21 years past has been connected with the firm of Howe, Brown & Co., Limited, at Pittsburgh, has severed his connection with that concern and will engage in another line of business.

James Clayton of the Clayton Air Compressor Works, New York, was among the passengers on the Cunard steamer Aurania, which sailed recently for Liverpool. Mr. Clayton will spend a well earned vacation of about three months traveling through England and France, and while in the former country will for a time be the guest of his brother, Thomas G. Clayton, the superintendent of the Midland Railway. Before his departure Mr. Clayton was presented with a handsome gold watch by his employees.

The many friends of Jas. H. Murdock, an iron and steel broker of Pittsburgh, and for some years secretary to the Wrought Iron Pipe and Tube Manufacturers' Association, will regret to learn that Mr. Murdock's health is completely shattered, and paresis having set in it has been found necessary to confine him in an insane asylum, located at Dixmont, Pa. Mr. Murdock is well known among the business men of Pittsburgh, and was highly esteemed by all who came in contact with him.

Washington News.

(From Our Regular Correspondent.)

WASHINGTON, D. C., June 7, 1892.

The regular meeting of the Committee on Ways and Means was abandoned to day for want of a quorum. It was proposed to finish the sub-committee consideration of the bill striking at the duties on pig, structural and cast iron and steel railway bars. The purpose of the majority is to have these bills acted upon in general committee for prompt report as soon as the present bills are out of the way.

The Senate Committee on Finance also abandoned their meeting to-day for want of a quorum. There has been no change, however, in their attitude on tariff matters. They will wait until all the House bills are reported and passed and then make their own report. The indications are that the summer will have run far into autumn before this point has been reached. The majority Senators are in favor of remaining here and carrying on a tariff debate while the Presidential campaign is at its hight. Protection and tariff reform will then have a revamping with a strong infusion of reciprocity. The old soil already well worked will be turned over once more for public instruction. All eyes in and out of Congress are now turned toward Minneapolis. Two weeks from to-day they will be pointing toward Chicago. The party platforms are awaited among legislators and politicians here with eager interest, as they will draw the lines upon which public opinion will record its judgment in the selection of the next chief of the Executive department of the Government. Both Houses of Congress are lagging along in a perfunctory discussion of appropriations under a truce between the two political parties which will cover the absence of Senators and Representatives who are in attendance at the national conventions. The House Committee on Ways and Means will submit a statement of their views on the tariff question for incorporation as a principle in the Chicago platform. It is understood that the general line of the Mills bill will be the basis of their recommendations. If Mr. Cleveland should be the nominee his own policy, already fought over, would be the issue in the contest of 1892.

There is no doubt after the two conventions shall have declared themselves it will be found that the contest of 1888 will be practically renewed in the campaign of the present year. The introduction of the reciprocal-trade feature is expected to win and to hold friends in sections of New England and the Northwest and West, where the protective theory is not as strong as it was 10 or 15 years ago.

MANUFACTURING.

Iron and Steel.

E. D. Reis, who had charge of the Rosena Furnace at New Castle, Pa., during the years it was operated under lease by the Oliver Iron and Steel Company, is now manager of Edith Furnace in Allegheny, Pa., which is also being operated under lease by the above firm. Rosena Furnace is idle and will not resume blast until some repairs and additions have been made, the date of which is very uncertain.

The plant of the Midland Steel Company at Muncie, Ind., is nearing completion, and they will probably commence operations within a few weeks, giving employment to about 200 to 300 men. Considerable of the machinery being put in this plant is being furnished by the Totten & Hogg Iron and Steel Foundry Company, Pittsburgh, Pa.

The Aliquippa Tin Plate Company of Pittsburgh were granted a charter of incorporation last week. The capital stock of the company is $150,000, and the incorporators are Jas. P. Bailey of Sewickley, Wm J Shaw of Bellevue, and H. W. Lowe of Pittsburgh. This concern propose to erect a plant at Aliquippa, Pa., for the purpose of coating black sheets. They will turn out both bright and roofing plates, and expect to be in the market in about three months.

The McKinley Tin Plate Company, Limited, of Pittsburgh, have been reorganized and hereafter will be known as the Wilkinsburg Tin Plate Company. The original firm were formed in Pittsburgh in January last and operations were carried on on Water street. On April 1 the plant was removed to Wilkinsburg, Pa., a few miles from Pittsburgh, where a larger factory has been erected and new machinery placed in it. Further additions are being made, and when the plant is in complete running order it is expected to turn out about 80 boxes of roofing plates per day.

J. Wood & Brothers Company of Conshohocken, Pa., have, since leasing the old Plymouth rolling mill property adjacent to their own premises, increased their capacity 75 per cent., having now an annual capacity of 25,000 tons among their four rolling mills. Their works are running full on double turn, with 600 hands in employment. They are turning out iron and steel sheets and plates of all gauges from ¼ inch to 28 gauge, and have developed a large Pacific Coast trade lately.

Alan Wood Company are about to tear down some 226 feet of one of the old rolling mill buildings at their Schuylkill Iron Works at Conshohocken, Pa. The building is a frame one, erected in 1856. It is to be replaced by an iron fire-proof structure. Their mills have been running to full capacity up to the present, but the building operations will necessitate shutting down a portion of them temporarily.

The Leechburg Foundry and Machine Company of Pittsburgh have received an order for two additional five-roll Morewood tinning machines for making 14 x 20 inch plates, to be furnished to Wallace, Banfield & Co., Limited, whose plant is located at Irondale, Ohio The same firm will ship to Irondale this week a 22-inch hot mill and a 22 inch cold-rolling mill. They have also about ready for shipment to the Canonsburg Iron and Steel Company, at Canonsburg, Pa., a pickling machine of Mesta design, for pickling plates up to 78 inches long by 36 inches wide, which is also arranged to pickle bright plates. A Mesta pickling machine has been in operation at the works of Wallace, Banfield & Co., Limited, for some time, and is giving entire satisfaction. In one day recently it pickled 30 tons of plates in six hours.

The Pittsburgh Forge and Iron Company, employing 1000 men in their Allegheny works, have notified their men that on July 1 a general reduction in wages must be made irrespective of any scale or rules the Amalgamated Association may determine upon.

The capital stock of the Shelby Steel Tube Company of Shelby, Ohio, has been increased from $400,000 to $200,0 0.

The Fulton Iron Works, at San Francisco, have been destroyed by fire. The loss is very large.

The Llano Steel Furnace and Mfg. Company of Llano, Texas, capitalized at $600,000, have applied for a charter. Work has already begun on a 50-ton furnace.

Last week an accident happened to one of the Tennessee Coal, Iron and Railroad Company's blast furnaces at South Pittsburg, Tenn., and while the workmen were making the necessary repairs it became chilled. Several barrels of oil were used in a vain effort to warm it up The damage is quite serious.

The Bessemer department of the Worcester Steel Works, at Worcester, Mass., has been sold to the Indiana Steel Company of Indianapolis, Ind., and the machinery will be removed to the latter city. The Worcester works will hereafter confine themselves to the open hearth process, under which process the works were run so successfully some years ago Four new furnaces will be put in and a foundry will be built in connection with the mill for making castings.

The new Dora Furnace of the Pulaski City (Va.) Development Company blew in Monday, May 23. After one week's run the furnace is now producing 100 tons of high grade of iron per day, and within a month the company expect to produce from 120 to 130 tons per day. This company also own the Eagle Furnace, the Raven Cliff, the Little Wythe, the Beverly and the Speedwell, all old charcoal furnaces, which will be dismantled.

It is now stated that a steel plant with a capital of $200 000 will be erected at Bessemer, Ala., by Northern capitalists and that the Tennessee Coal, Iron and Railway Company are interested in the enterprise.

It is stated that there is a movement on foot to purchase the Bessemer Rolling Mill, at Bessemer, Ala., and convert it into a cotton tie factory.

Machinery.

Last week a charter was granted to the James P. Witherow Company of Pittsburgh. The incorporators are G. B. Bothwell and John J Bothwell of Allegheny, J. A. Cunningham and N. B. Richardson of Pittsburgh and H. Taggart of New York. It is understood that this company have been formed to represent the interests of the creditors of Mr. Witherow, and will operate the large works of that gentleman located at New Castle, Pa., which have been idle since his assignment in November of last year. The arrangement by which the new firm will operate the plant is that the creditors will take preferred stock for the full amount of their claims, and the common stock will be held by Mr. Witherow. If present plans carry, it is expected to put the works in operation about July 1.

The Southwark Foundry and Machine Company of Philadelphia, who recently built for the Spring Garden Water Works of that city the largest pumping engine in existence, are preparing to duplicate that mammoth machine for the Roxborough Water Works. The new pump will occupy a floor space of 40 x 30 feet and 30 feet in hight. The steam and water cylinders will be supported by two massive bed plates, each weighing 80,000 pounds The fly wheel, 20 feet in diameter and weighing 90,000 pounds, is to be carried by the main shaft. The two pump plungers are of the double-acting pattern, each 37 inches in diameter. The entire pump when completed will weigh a trifle over 950,000 pounds and will cost the city $72,000.

Byram & Co. of Detroit, Mich., extensive manufacturers of the Colliau cupola furnace, have recently made shipment of the second furnace to equip the new shops of the Schenectady Locomotive Works, Schenectady, N. Y. They are turning out more of these furnaces than during any previous year.

The Pennsylvania Machine Company, 31 North Seventh street, Philadelphia, report continued briskness in their business, sales during May having been considerably in advance of those of any previous month for the last year and a half, with every prospect of the improvement being satisfactorily maintained in the future. Although inquiries are rather below the average, the volume of orders exceeds it. Mr. Chapman, President of the Fitchburg Machine Works, of which they are the Philadelphia representatives, who is now in the latter city on his return from Ohio, reports the sale of 60 machine tools of their own make, to one concern in that State, representing a value of over $20,000.

The latest concern to adopt the Ridgway steam hydraulic system of cranes, is the Kellogg Seamless Tube and Mfg. Company of Findlay, Ohio. This company are crowded with orders for the Government and others, and are obliged to increase their capacity about fourfold. The Ridgway cranes, for which orders have been placed, were adopted for handling materials and machinery with greater rapidity.

Schleicher, Schumm & Co. of the Otto Gas Engine Works, Thirty-third and Walnut streets, Philadelphia, have recently made a considerable addition to their plant, in the shape of a separate building for testing and finishing gasoline engines, it being deemed advisable to keep this department apart from the gas engine factory. The new shop is fitted with traveling cranes and the most efficient equipment in other respects. The manufacture of gasoline engines is a comparatively new line with the company, but they have rapidly earned favor for many purposes, particularly for use in those places outside city limits where gas is not procurable. These engines are capable of producing power at an average cost of less than 1 cent per horse-power per hour, being the equivalent of steam engines using from 4 to 6 pounds of coal in the same time for similar power; and they are proportionately valuable and economical accordingly for all small power purposes up to 30 horse-power, besides possessing numerous other advantages which the makers claim for them over steam engines fired by oil, wood or coal. Schleicher, Schumm & Co. have supplied these engines very largely to the Western States for use in lumber yards, for grain elevators, &c., and they are in request for almost every description of work, particularly as a motor for electric lighting purposes. They are also made in a portable form mounted on wheels, for agricultural and other purposes, and horizontal ones are in use for propelling ferry boats on the Missouri River. The power is obtained from the combustion of gasoline and air in the engine cylinder, fired by an electric spark or a hot tube, and the system is said to possess the recommendation of absolute safety.

Arrangements have just been perfected in Cincinnati, it is reported, to put the Niles Tool Works at Hamilton, Ohio, in the hands of a syndicate, and to extend the works. The transaction involves the issue of $1,000,000 worth of 6¼ per cent. bonds. How much the capital stock will be has not transpired.

The Henry Martin Brick Machine Mfg. Company of Lancaster, Pa., are building extensive works for the manufacture of their old standard and widely known Henry Martin brick machines, of which they have over 3000 in use. The new plant will comprise a large foundry, machine shop, planing mill, storage house, erecting shop and lumber yard, with office buildings, &c., attached. The company have done an exceedingly prosperous business, and the outlook for the future warrants the creation of greater facilities to handle their trade.

The Ohio Machine Tool Works of Cincinnati have just placed on the market a new machine intended for the rapid production of machine work, such as boring and turning blank gears, motor gears, cone, friction and regular pulleys and heavy duplicate work for all classes of machinery, especially Corliss and slide valve engine details. The speeds range from 25 feet per minute for cutting up to 300 revolutions for scraping or polishing; swings 26 inches, is 7 feet long, and is geared 30 to 1.

The Arcade File Works of Sing Sing, N. Y., have closed down preparatory to removing the works to Anderson, Ind.

W. E. Clark's foundry and machine shop at New Orleans, La., has been damaged $8000 by fire.

The Monitor Iron Works of Sing Sing, N. Y., have purchased land at Newark, N. J., at a cost of $20,000, on which they will expend $40,000 in the erection of a new manufacturing plant.

S. F. Stephens is preparing to establish an extensive foundry and machine shop at Greenwood, S. C.

The Pierce, Butler & Pierce Mfg. Company will remove their foundry from Geneva to Syracuse, N. Y., 12 acres of land having been purchased at the latter place as a site for new works.

The National Lathe and Tool Company of Philadelphia are negotiating with the Advancement Association of Milwaukee with a view to establishing a manufacturing plant at that place.

In one day last week the Totten & Hogg Iron and Steel Foundry Company of Pittsburgh received orders for 120 rolls of different sizes. This is probably the largest order for rolls ever placed with any concern in one day.

We are advised that the report that trouble existed among the employees of the McKeesport Iron Works of the W. Dewees Wood Company, at McKeesport, Pa., is without foundation. There is no trouble whatever, and the works are being operated to their full capacity.

Hardware.

The Youngstown Stamping Company, Youngstown, Ohio, have decided to increase their capital stock from $50,000 to $100,000. Their business has grown from a very small trade in a general line of tinware to one of large proportions. Their plant covers about 3 acres of ground, the main building being 350 feet long by 60 feet wide and their glass factory building 70 x 70 feet, while there are also an engine house and several other smaller buildings. They now claim to be the largest manufacturers of glass oil cans in the United States and also one of the largest manufacturers of tin fruit cans, glass fruit cans and many other specialties. R. L. Walker is president of the company, L. Lane, vice-president, and W. C. Hine, secretary and treasurer.

The Stanley Works tack factory, at New Britain, Conn., was burned on the 2d inst. The loss is $75,000 and the insurance $45,000. The factory was of wood, 80 x 215 feet, and well saturated with oil. The fire started in the boiler room.

The Chapin Cutlery Company, Toledo, Ohio, are building a new factory in that city. The new shop is situated on L. S. & M. C. R. R. The main building is 145 x 38 feet, two stories high. The other buildings consist of forge room and boiler and engine rooms, all of brick. The company are putting in a 125 horse-power automatic engine and will have, they advise us, a capacity of 250 to 300 dozen of their various styles of hollow handle table cutlery per day, including both knives and forks.

Miscellaneous.

In a circular issued to the trade Stanley G. Flagg & Co. of Philadelphia announce that they have just completed extensive alterations and improvements in their plant at Nineteenth street and Pennsylvania avenue, on which they have been engaged for some months past, thereby greatly improving their facilities for the production of steel and malleable iron castings, increasing the capacity more than 20 per cent. Among other work a fire-proof building with second story core room has been erected, as well as a new shed of two stories, 150 x 30 feet, for coal and lumber storage. The company's special line of manufacture is small steel castings from ¼ an ounce upward, which they claim to be of particularly fine grade and uniform quality, being smooth and absolutely true to pattern. For these they have a large and growing demand, particularly in the New England and Middle States, though shipments of considerable quantities are also being made to the South, and West as far as Chicago. They have also increased their facilities for turning out malleable and cast-iron fittings of the highest grade for plumbers' and gas and steam fitters' supplies, and are now embarking on a new line of electrical fittings Messrs. Flagg & Co. state that they are prepared to furnish any of the above named goods promptly, as they carry a large stock in hand, and their recent enlargement will enable them to meet all requirements satisfactorily.

Waldo & Stout, Bridgeport, Conn., have recently begun the business of founders in aluminum, silicon and manganese bronze. They occupy a new building 160 x 60 feet, which is equipped with traveling cranes, mitis furnaces, oil fuel, and all the latest appliances relating to the business, including a complete physical and chemical laboratory. The new firm is composed of Dr. Leonard Waldo, formerly of the technical staff of the Aluminum Brass and Bronze Company, and well known in the scientific world, and Newton E. Stout of New York. Edwin S. Sperry, the superintendent, also is a metallurgist of reputation. The product of the new foundry will include castings of all weights and descriptions in high grade alloys, including, beside those noted above, phosphor brasses and bronzes and pure aluminum.

John Dunlay & Co., tin plate importers and tin-ware manufacturers of Pittsburgh, have placed an order with Hunt & Clapp of that city for 1000 12 x 24 x ⅝ inch anodes of 97 per cent. of pure nickel.

The Cambridge Foundry Company have been organized at Cambridge, Ohio, with a capital stock of $10,000, for the purpose of doing a general foundry business. The incorporators are John L. Locke, H. F. Coates, J. H. Taylor and J. H. Tuttle.

Work has commenced at Carlisle, Pa., on the new frog and switch works. The shops will be 300 x 100 feet, and will be so planned that the capacity can be doubled at any time.

Plans are about completed for the factory of the Jones Vestibule Car Company at Denver, Col. The main building will be 900 feet in length.

The Barney & Smith Mfg. Company, established at Dayton, Ohio, in 1849 by E. Thresher and E. E. Barney, and better known as the Dayton Car Works, have been bought by a party of Eastern capitalists for $4,500,000. The works are only surpassed in size by the Pullman plant. They cover 20 acres and employ 1300 men. The present management will continue to run the works for five years.

The Bertha Zinc Works of Pulaski City, Va., which recently changed hands, are now in a most flourishing condition. The company have ten smelting furnaces in operation, and with improved machinery recently added are working over the waste pile of the past ten years at a considerable profit. More than 1000 hands are now employed at the works.

The Roanoke Coal and Coke Company have been incorporated at Rolfe, W. Va., with a capital of $10,000. W. H. Walters, J. W. Denarl of Freeman and others are the incorporators. The principal office will be at Rolfe.

TRADE REPORT.

The interval from the first of the month has been too short for us to obtain as complete returns from the furnace companies of the United States as we would desire to have for our regular monthly statement. Its publication, therefore, will be deferred until another week. Reports thus far received show a net decrease in active furnaces of one Coke stack and four Anthracite stacks, while the Charcoal furnaces show a gain of two throughout the entire country.

The returns of stocks of Pig Iron on hand are sufficiently full to confirm the statement made in these columns last week that the accumulation of stocks has now been arrested. The stocks of Anthracite Pig Iron have been reduced some 12,000 tons during the past month. In Coke Pig Iron the Virginia furnaces, the furnaces of the Wheeling district and those of Tennessee show a slight increase, but hardly sufficient to make it of importance. The furnaces of the Shenango Valley, the Mahoning Valley, Illinois and Wisconsin have decreased their stocks quite heavily, amounting in the aggregate for these districts to about 28,000 tons, which is quite significant. The furnaces in Central and Northern Ohio, however, increased their stocks during the month to some extent. The Michigan Charcoal furnaces reduced their stocks slightly, while those of Wisconsin show a corresponding increase, which practically leaves the Lake Superior Charcoal stocks in about the same condition as on May 1. This is encouraging, as it shows that the long-continued accumulation of stocks of that class of Pig Iron has at last been checked.

The Western labor situation is now becoming a matter of absorbing interest, as within the next week or two the question will probably be decided whether the mills will be continued in operation or a long shut down inaugurated in July.

A better inquiry for Pig Iron and numerous sales of Bessemer are reported at Pittsburgh. One sale of 6000 tons, for delivery in equal monthly quantities from July to December is reported at $14.45, delivered, the freight being 60¢. Chicago reports continued strength in prices of Pig Iron, but a smaller volume of sales than in the previous week. Detroit reports a flood of inquiries for Lake Superior Charcoal Pig. At Philadelphia Pig Iron is in better general demand, but plenty of cheap Iron is available at $1 @ $2 ℔ ton below standard Pennsylvania brands.

Steel Billets are stronger, and are now quoted at $22.50, Pittsburgh. The firmer feeling, however, is largely due to the expected shut down of the mills in July.

Agricultural contracts for Merchant Steel have been placed at Chicago at an advance of $1 @ $2 ℔ ton on last year's terms.

The Western Plate mills are reported unusually aggressive in Eastern markets.

Sales of Structural Shapes have been heavier throughout the country the past week than for some time, but competition among manufacturers is forcing prices lower.

Our local metal reports show that Lake Superior Copper has sold at slightly lower prices—11.85¢ @ 11.87½¢. There is a better demand for Casting Copper, and the price is steady at 11.25¢.

Pig Tin has advanced in New York to 22¢, July, and 22.05¢ @ 22.10¢ for later deliveries, with an active speculative business at the advance. The spot market for some grades of Tin Plates is a shade firmer.

At St. Louis Pig Lead has sold at 4¢ and lower, yet there is an apparent undertone of strength. Spelter is stronger, with sales at 4.57½¢ @ 4.60¢.

Our London cable dispatch reports a large business in Scotch warrants. Furnaces are resuming operations, now that the Durham coal miners' strike has been settled.

Pig Tin has advanced £1. 10/ per ton in London, the upward movement having been caused by reported large purchases for American account. Copper advanced early in the week, owing to completion of arrangements for limiting production. Business in Tin Plates has been light, but prices are 3d per box higher.

Chicago.

(*By Telegraph.*)

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, June 8, 1892.

Pig Iron.—The conditions of the mardet are scarcely changed from a week ago. The surface indicates uniformity and strength in prices. Trading has been chiefly in carload lots, with an occasional 100-ton deal closed. The aggregate tonnage of the sales made was not so large as the week previous, and yet so scattered as to reassure dealers that stocks in consumers' hands are abnormally small. Large Charcoal buyers are still endeavoring to secure their year's supply at $16, with apparently no encouragement beyond the fact that the Iron remains in the furnace yards and is not shrinking to an alarming extent. Sometimes a small lot for immediate shipment can be placed at $16.25, cash, and again there are other brands that are selling at $17 for small lots on the same conditions. Although there has been a large amount of this grade of Iron placed under contract, it is said that the largest bulk buyers have not yet provided for the year, albeit they have been maneuvering for 30 days to obtain concessions demanded. Transactions in local Coke Irons were on small lots, and not many of them. Since Southern furnaces have quit grabbing at everything offered, and are asking and getting a better price, there has been an increase in the demand for Coke and soft grades. More buyers realize every week that they waited too long, and would willingly close now at the figure asked the first part of last month. Business taken of late has not been profitable and furnacemen do not now expect any material advance in prices, but believe that in refusing to make lower prices they are taking an important step toward a better future for themselves and claim that it establishes for the time being the minimum price at which Iron can be produced at a profit under the most favorable circumstances. Under the influence of this position the smaller buyers are covering for a long period and the large buyers are trying to cover their year's supply at figures ruling at 60 days delivery, which has been uniformly rejected during the last two weeks. Upon the whole the

market is firmer and more satisfactory to the seller than it has been for months past. We make the following quotations, f.o.b., cash, Chicago:

Lake Superior Charcoal	$16.50 @ $17.00
Local Coke Foundry, No. 1	14.50 @ 15.00
Local Coke Foundry No. 2	14.00 @ 14.50
Local Coke Foundry No. 3	13.50 @ 14.00
Local Scotch	15.00 @ 16.00
Ohio Strong Softeners	16.50 @ 17.00
Southern Coke No. 1	15 00 @ 15.50
Southern Coke, No. 2	13 85 @ 14 25
Southern Coke, No. 3	13.35 @ 13.75
Southern, No. 1 Soft	13.75 @ 14 25
Southern, No. 2, Soft	13.35 @ 13.50
Southern Gray Forge	12 75 @ 13.25
Southern Mottled	12 75 @ 13 25
Tennessee Charcoal, No. 1	17.50 @ 18.00
Alabama Car Wheel	21.00 @ 23.00
Coke Bessemer	15 50 @ 16 00
Hocking Valley, No. 1	17.00 @ 17 50
Jackson County Silvery	17.00 @ 17.50

Iron and Steel Bars.—Whether from the near approach of July 1, when probably a general shut down may occur, or from other causes more potent, it matters not, there is certainly a better feeling and evidence of less cutting in prices. Few, if any, of the makers of a good grade of Iron are asking or getting better prices, but they are getting more orders at the price they maintained when the cheaper sellers were taking the business. All makers are closer together in their quotations and more independent about obtaining the order. As a rule, on round lots manufacturers of the best grades of common Iron are asking 1.50¢ at mill, half extras, and on the cheaper qualities nothing less than 1.45¢, half extras, has been heard of in this market in the last week. Many of the mills will not book orders for delivery after July 1, except subject to delay, and some makers decline to name prices beyond that date, in view of the labor changes that may occur. From store jobbers quote 1.75¢ @ 1.80¢. rates. There is quite a demand for Soft Steel Bars in commercial sizes and much improvement in the demand from the implement makers. The placing of orders by this class of buyers developed strong competition, which resulted in shading prices that heretofore were considered firm. On round lots makers are asking 1.70¢, Chicago, on Bar Iron card, and shading the price in competition with Iron for the same purpose out of stores. Jobbers are quoting 1.85¢ @ 2¢, according to quantity and specifications.

Structural Iron.—Orders for building shapes for several large structures were placed last week, on which deliveries begin at once. The demand for small lots was an increase over several previous weeks, and the immediate prospects for trade are very encouraging. In round lots makers are quoting 2¢ @ 2.05¢ on Beams and Channels; Angles, 1.85¢; Sheared Plates, 1.95¢; Universal Plates, 1.90¢; Tees, 2.40¢. From stock, 15¢ additional is added to the prices.

Billets and Rods.—Makers are holding prices firm on these articles. The demand is limited to a few consumers who generally purchase their supply from Western producers at figures based on Pittsburgh prices, freight added. Billets are now quoted at $25 and Rods at $34.50, Chicago delivery.

Rails and Track Supplies.—Business continues fair and active for small lots of Rails, for which makers continue to ask $31 @ $31.50. Several orders for large blocks are in prospect for summer delivery. Quotations on Splice Bars are 1.70¢ for Iron and 1.75¢ for Steel; Track Bolts, Hexagon Nuts, 2.62½¢, and Square Nuts, 2.55¢.

Merchant Steel.—In a general way business in Merchant Steel has been very fair. There are some buyers of agricultural shapes closing orders every week, but the largest consumers have only recently put out specifications, and are not yet ready to complete the purchase. Contracts have been closed during the past week at from $1 to $2 a ton advance on the price at which these orders were placed last year. The demand for Plow or Soft Center Steels is much lighter than it should be, which is probably accounted for by the backwardness of the season; nevertheless it would appear that contract buyers will place most of their orders during June this year, which is about 30 days earlier than usual. There is a fair demand for miscellaneous articles and prices on the whole line are considered very fair when compared with the irregularity in the Bar Iron trade. With continued fair weather a great improvement is expected this month. Quotations are unchanged, as follow: Open-Hearth Spring, Tire and Machinery Steels, 2¢ @ 2½¢; Crucible Spring Steel, 3½¢ @ 4¢; Machinery, 4½¢ @ 5¢; Tool Steels, ordinary grades at 6½¢@ 8¢.

Plates, Tubes, &c.—There is no visible change in the conditions of this market. Workmen who are out on a strike appear as indifferent to the results as if they were millionaires. They have made no movement toward a settlement, and manufacturers are as persistent as ever in their resolution to make no concessions. Jobbers are practically idle. They have no requests from local consumers for stock of any character. They are doing some figuring on material for future delivery in case the strike ends in time to get the work out this summer. In small lots they are having a light demand from country manufacturers, but this does not keep their force employed more than one-fourth of the time. Manufacturers of Plates are becoming restless under this condition of affairs, and are trying to force sales for prompt shipment and future delivery. On orders for shipment this month prices are weak. For delivery after July and later in the season some makers are asking higher prices. Boiler Tubes are in fair request from territory where labor is not disturbed. The local demand is exceedingly light, and prices made by manufacturers indicate a weakness in the market. Quotations remain as heretofore noted by jobbers from store on Plates and Tubes.

Sheets.—If manufacturers were willing they could book a great many orders for Black Sheets. There is a decided inclination to place new orders for delivery during July and August, but mills are as a rule declining to accept the business. Prices are firm, and No. 27 Iron Sheets are now quoted 2.75¢ at mill in most cases, and Steel Sheets 2.80¢. The new mill at Joliet has been taking so many orders in this market within the last two weeks that their capacity will be fully occupied for several months. Out of store jobbers are quoting No. 27 Iron on a basis of 2.90¢ @ 3¢. The demand for Galvanized Iron is quite good and prices fairly steady at 70 and 10 % off on Juniata grade at mill in carload lots. Jobbers continue to quote in small lots out of store at 70 % off. Some of the leading makers are trying to get higher prices.

Old Rails and Wheels.—No sales of Old Rails are reported. Nominal quotations are $18 @ $18.50. One sale of Old Wheels was made at $14.50 in connection with a trade. The nominal price is $15 @ $15.50. Straight sellers would not accept the former price. Old Steel Rails are seldom mentioned as a commercial article. Stocks are plenty, but there are no buyers. We continue to quote them nominally at $12.50 @ $13.

Scrap.—In the way of business there is scarcely a market for this material. Dealers in a sense are entirely out of the business, as they can neither buy nor sell. When consumers want a lot of any particular kind, they buy direct from the railroads or other producers. Dealers make the following quotations, per net ton, f.o.b. Chicago: No. 1 Forge, $14; No. 1 Mill, $9.50; Iron Splice Bars, $17 50; Pipe, $9.25; Mixed Steel, gross ton, $10; Coil Steel, $14; Leaf Steel, $15.

Metals.—The Copper market for immediate shipment appears to be a trifle weaker; Casting brands are quoted at 11.75¢ and shaded to 11.50¢. For Lake Copper the demand is fairly active and quoted at 12.25¢ in carload lots, and 12.50¢ in less than carloads. There has been considerable inquiry for Spelter, which is quoted at 4.65¢ for immediate shipment. For July delivery this price has been bid, but producers are asking higher figures. There has been no activity in the Pig Lead market and prices have ruled fairly steady at 4½¢ in carload lots. Small lots are quoted at 4.35¢.

It is with pleasure we announce the return of Charles Himrod and Kirk Himrod to the Pig Iron commission business. Beginning the first of this month they reestablished themselves under the firm name of Charles Himrod & Co., and have associated with them T. A. Hagerty, lately of the firm of Dunham, Keedy & Hagerty, who were doing business under that name during the past year and have now dissolved partnership. The business will be conducted from the present office, 939 The Rookery, Chicago, where they will be pleased to meet their friends and former patrons.

The firm of Dunham, Keedy & Hagerty, Chicago, dissolved partnership on the 2d inst. Mr. Dunham and Mr. Keedy will continue the Pig Iron commission business at the same office, under the style of Dunham, Keedy & Co., and will also continue to represent the same brands of Iron as were handled by the old firm.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., June 7, 1892.

The position is much the same as reported during the past three or four weeks. The supply is large, the demand moderate, while prices, if not positively weak, are certainly very far from being strong. Business all through the year up to date has been one continual disappointment, and, although there is not the least indication upon which to base expectations of anything better in the immediate future, it is, nevertheless, believed that the turn must come soon, and, in fact, will come at a time and in a way in which it is least expected. This and the extremely unsatisfactory prices appears to be all the foundation there is for expecting better times. As matters have been bad so long, and could hardly be worse, it is not unreasonable to suppose that the next turn will be of a more cheerful character.

Pig Iron.—It is not an easy matter to say whether the market is better or worse, but as a matter of fact it is both. There is a better general demand, and really desirable brands are firm, but, on the other hand, there is a great deal of Iron that nobody wants and for which lower figures than ever have been quoted, from which it will be seen that there are at least two sides to be considered. Nevertheless, good Irons are usually the keynote of the market, and for that reason we are inclined to the opinion that the tendency is toward improvement. This does not mean that there will be no more No. 3 Iron at less than $12.75 @ $13, or No. 1 Soft at $14, and other grades in proportion, but it is significant that really desirable and well-known brands refuse to budge from the relatively high figures hitherto realized for them, and meanwhile they are becoming a little scarcer. Disorganization during the holidays may possibly shake things again temporarily, but on the whole we are inclined to think that stand-

ard brands are about as low as they will go, with a fair chance that they may make an upward movement when least expected. As to low-priced Southern Irons, there appears to be no limit to the offerings, nor to the difference of opinion in regard to quality, but the mere fact that with the exception of a few first-class Irons made in Virginia prices are all the way from $1 to $2 ℔ ton below Pennsylvania brands is evidence that there must be some reason for the discrepancy in prices. That, however, and to what extent, is for consumers to determine. Meanwhile quotations range as given below for Philadelphia, and from 25¢ to 50¢ less for deliveries of Southern Iron at points such as Baltimore, Wilmington, York, Harrisburg, &c.

American Scotch, No. 1x	$17.00	@	$17.50
American Scotch, No. 2x	16.00	@	16.50
Standard Penna (Lake Ore), No. 1x	15 75	@	16.25
Standard Penna. (Lake Ore), No. 2x	14 75	@	15.25
Standard Penna. (Lake Ore), No. 2 plain	13.50	@	14.00
Medium Quality, No. 1x	15.00	@	15.50
Medium Quality, No. 2x	14.00	@	14.50
Standard Virginia, No. 1x	14.75	@	15.25
Standard Virginia, No. 2x	14.00	@	14.50
Medium Va. and Southern, No. 1x	14.50	@	14.75
Medium Va. and Southern, No. 2x	14.00	@	14.25
Standard Penna. and Virginia Forge	13 50	@	14.00
Ordinary Forge	12.75	@	13.25
Hot-Blast Charcoal	18.50	@	21.00
Cold-Blast Charcoal	24.00	@	26.00

Bessemer Pig.—There is very little doing, although some of the near-by furnaces claim to be getting $15.75 @ $16.25, f.o.b. cars, for standard brands.

Low-Phosphorus Pig.—Market very quiet, prices nominally from $17.25 to $17.50, at furnace.

Muck Bars.—There is very little demand, and $25 @ $25.25, delivered, would be a full price for first-class Bars. Some makes could be had at $24.50, but there is little or nothing doing, so that prices are almost nominal.

Steel Billets.—The feeling among sellers seems to be a little firmer, but in the absence of business it is difficult to say what the position really is. Some sellers claim to be out of the market at anything less than $25 for Philadelphia or equivalent points; others name $24.75, while buyers express the opinion that bids of $24.50 would not remain long without acceptance. The real difficulty is that consumers are full for some time to come, and as there is no disposition to buy, makers consider they may as well ask $25 as a lower figure. It is a stand off on both sides, with something of a probability that higher rather than lower figures will be the ultimate outcome, but in the meanwhile it is hardly likely that any serious attempts to do business will be made until toward or after midsummer.

Steel Rails.—There is more business being placed, but nothing in large lots. The roads are taking such quantities as they need immediately, but are placing very few orders for forward delivery, hence while there is a degree of activity at the mills there is no certainty in regard to the future, although it is presumed that the roads will have to use as many Rails as during last year—possibly more. Prices steady and unchanged at $30 at mills.

Bar Iron.—There is absolutely no change, and for all practical purposes any of our recent reports would be as near the market to day as at the time they were written. There is a fair demand, and in most cases 1.65¢ @ 1.70¢ is quoted at city mills, and 1.60¢ @ 1.65¢ at interior points, but even these low figures are said to be shaded occasionally. No change is likely to occur until toward midsummer, at which time it is possible that the labor question may have some influence, but in the meanwhile the market is pretty steady for good Bars.

Plates.—The same old story must be repeated, as there is not the slightest indication of a movement toward improvement, while in the other direction there is absolutely no chance for lower prices than have already been quoted. Such figures as 1.72½¢, delivered, for ordinary Tank Steel, 1.80¢ for Sheared Bridge Plates and 2¢ for Shell ought surely to be low enough and may not be repeated, but it is very hard work to get much beyond these figures unless for very small lots. Competition is very sharp, however, Western mills being unusually aggressive. Ordinary quotations are about as follows, subject to more or less of a concession when the order is important:

	Iron	Steel.
Tank Plates	1.80 @ 1.90¢	1.75 @ 1.85¢
Shell		2.10 @ 2.20¢
Flange	2.70 @ 2.90¢	2.30 @ 2.40¢
Fire Box	3.00 @ 4.00¢	2 60 @ 2 80¢
Special qualities		3.25 @ 3.75¢

Structural Material.—There is no very marked improvement in this department, although some large business is said to be developing, and will almost certainly be on the market before long. In this vicinity an order for 400 tons for the Hotel Metropole was taken by the Phœnix Iron Company a few days ago, and one of 500 tons for the Odd Fellows' Hall is expected to be given out during the week; but work is badly wanted, and it will require a large amount to give anything near full time, as with one or two exceptions the mills are all running short. Meanwhile prices are about as follows: From 1.80¢ to 1.85¢, delivered, for Bridge Plates; 1.80¢ @ 1.90¢ for Angles, and 2.10¢ @ 2.20¢ for Beams, Channels or Tees, price depending on size of order.

Sheet Iron.—The demand is a little better in some specialties, but on the whole the market cannot be called active, and about all that manufacturers can do is to hold their own. Prices fairly steady, and for the best makes may be quoted as follows:

Best Refined, Nos. 14 to 20	2.40¢ @ 2.60¢
Best Refined, Nos. 21 to 24	2.90¢ @ 3.00¢
Best Refined, Nos. 25 to 26	3.10¢ @ 3.15¢
Best Refined, No. 27	3.30¢ @ 3 40¢
Best Refined, No. 28	3.40¢ @ 3 50¢

Common, ¼¢ less than the above.

Quotations given as follows are for the best Open-Hearth Steel, ordinary Bessemer being about ¼¢ lower than are here named:

Best Soft Steel, Nos. 14 to 20	3¢ @ 3⅛¢
Best Soft Steel, Nos. 21 to 24	3¼¢ @ 3⅜¢
Best Soft Steel, Nos. 25 to 26	3⅜¢ @ 3⅝¢
Best Soft Steel, Nos. 27 to 28	3⅝¢ @ 4¢

Best Bloom Sheets, ¼¢ extra over the above prices.

Best Bloom, Galvanized, discount	@ 70 %
Common, discount	@ 72½ %

Old Material.—Market dull and depressed, and in Iron is a little lower than it was a week ago. Steel Scrap is fairly steady, and general quotations about as follows: $16 @ $16.50, delivered, for Heavy Steel Scrap, and $19 @ $19 50 for low phosphorus. General quotations about as follows: Iron Rails, $19.50, spot, to $20.50, delivered; Steel Rails, $16 @ $16 50, delivered; No. 1 Railroad Scrap, $17.50 @ $18, Philadelphia, or for deliveries at mills in the interior $17.50 @ $18.50, according to distance and quality; $12.50 @ $13 for No. 2 Light; $13 @ $14 for best Machinery Scrap; $13 @ $14 for Wrought Turnings; $9 @ $10 for Cast Borings, and nominally $22 @ $24 for Old Fish Plates, and $15 @ $16 for Old Car Wheels.

Wrought-Iron Pipe.—Market irregular and unchanged, except for Boiler Tubes, which are in better demand, although easier in price. Discounts nominally as follows, but on good sized orders 5 % @ 10 % extra is not hard to secure:

Butt-Welded Black	57½ %
Butt-Welded Galvanized	47½ %
Lap-Welded Black	67½ %
Lap-Welded Galvanized	55 %
Boiler Tubes, 2½ inch and under	60 %
Boiler Tubes, 3 to 6 inch	65 %
Boiler Tubes, 7 inch and larger	55 %

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, Pittsburgh, June 7, 1892.

The month of June opens up with inquiries a little more numerous for Bessemer Pig Iron and Billets, but as yet there has not been any noticeable increase in sales. In the other lines, such as Muck Bar, Structural Material, Wire Rods, Steel Plates, Wire and Nails, the same conditions continue to prevail as have been noted for some weeks past. The uncertainty hanging over business by reason of probable labor troubles is having a bad effect, and the hope is expressed on all sides that the wage scales that come up for settlement this month may be arranged without a strike. While no betterment of the business situation is looked for in June, the opinion is expressed by some that the last half of the year will show more business done than the first half, and possibly better prices. An improvement in demand and prices would certainly be a welcome change and cannot come too soon.

Pig Iron.—As we stated above, there was a better inquiry for Pig Iron last week than for some time past. This applies particularly to Bessemer, and numerous sales involving from 300 to 1000 tons are reported. Buyers, however, have not enough confidence in the future to cause them to anticipate more than immediate wants, and as a result of this no large blocks of Iron are changing hands. On the other hand, a good many furnace operators do not seem inclined to book orders for delivery running well up to the close of the year at present prices. They argue that Pig Iron of all kinds is lower to-day than it has ever been before, and in view of the furnaces now out of blast and the slow but sure manner in which stocks are being reduced, cannot help having a good effect, and the next change in prices must be for the better. As to whether this is a correct view of the situation or not time alone will tell. For the week under review the market did not show any marked change from that of the previous week. Reports are still going of sales of Bessemer at $14, but are not being verified. Foundry and Gray Forge Irons continue dull, and prices are unchanged. We quote the market as follows:

Neutral Gray Forge	$12.60	@	$12.75,	cash
White and Mottled	12.25	@	12 50,	"
All-Ore Mill	12.75	@	13.00,	"
No. 1 Foundry	14.40	@	14.65,	"
No. 2 Foundry	13.50	@	13 75,	"
Bessemer Iron	14.10	@	14.25,	"
Cold-Blast Charcoal	24.50	@	25.00,	"

We are advised of sales as follows: 1000 tons Bessemer for June and July at $14.25, delivered at buyers' mill, 3000 tons for June and July at $14.20, delivered, and 6000 tons of Bessemer for delivery from July to December, 1000 tons per month, at $14.45, delivered, the freight being 60¢. Also 500 tons of Gray Forge for June and July delivery at $12.60, delivered at buyers' mill.

Ferromanganese.—A fairly good demand is reported for domestic, and the price ranges from $61 to $62.

Soft Steel Billets.—As we intimated last week, the market is gaining strength and Billets for June delivery are held firmly by Pittsburgh at $22.50. The present situation indicates that the Steel plants will all be closed during the first two weeks in July and possibly for a longer period, and this has caused consumers to hurry in orders this month that under other circumstances would not have been placed until July or later. The four mills here are well filled up with business until July 1, and the same is true to a great extent of mills in the Wheeling dis-

trict. For Billets for delivery up to January 1, 1893, makers do not seem inclined to name present prices, and buyers are not willing to pay an advance. As a result of this a waiting game is going on, and it is impossible to state which will give way first, the buyer or seller. Plans have about been finished for the building of a Bessemer Steel plant in Youngstown, Ohio, and bids for the erection of the plant will be asked in a short time. It is proposed to put up a modern plant that will have a capacity of from 500 to 800 tons per day. A large Western buyer was in the market for Billets last week, but as near as we can learn Pittsburgh did not take any of the business. It is reported that one of the Wheeling mills booked 10,000 tons of this order, deliveries running from August to December, inclusive, at a price equal to $22.35, f.o.b. at mill.

Steel Rails.—We are not advised of any large orders having been placed for some time. The Edgar Thomson Mill, however, is well fixed for business, having booked some good orders in the early part of the year. A good many small orders are being placed on which prompt shipment is asked. Prices are unchanged, being $30, f.o.b. at mill.

Structural Material.—A fair volume of business is reported, but, owing to the large capacity of the mills for production, prices are not being maintained, and continue to favor the buyer. The erection of three large buildings in this city is contemplated, for which a good many tons of beams and columns will be required. The Structural Material being used in the new buildings of Bernard Gloeckler on Penn avenue, this city, is being furnished by Jones & Laughlins, Limited. We quote as follows: Beams and Channels, on a basis of 1.90¢ @ 1.95¢ for desirable orders and 2¢ @ 2.10¢ for small lots; Angles, 1.85¢ @ 1.90¢; Universal Mill Plates, Iron, 1.80¢ @ 1.90¢; Universal Mill Plates, Steel, 1.80¢ @ 1.90¢; Tees, 2.40¢; Refined Iron Bars, 1.70¢; Steel Bars, 1.70¢.

Wire Rods.—The activity in the Wire trades is causing a heavy demand for Rods for prompt shipment, and mills, as a rule, are well sold ahead. The new Rod mill of the Pittsburgh Wire Company at Braddock is running in a very satisfactory manner, turning out about 120 tons per day, which are being sold as fast as made. We quote the market at $31.75 @ $32.25, f.o.b. at mill, for delivery after July 1.

Steel Plates.—There is no change to note. A fair demand is going, but the large capacity for production causes active competition for business, with prices in favor of the buyer. We repeat quotations of last week, as follows: Flange, 2.05¢ @ 2.15¢; Fire Box, 3.50¢ @ 3.75¢; Shell, 2¢ @ 2.10¢; Tank, 1.75¢ @ 1.85¢, f.o.b. Pittsburgh.

Merchant Steel.—Buying continues to be confined chiefly to small lots, and as a result mills have not sufficient orders booked to meet their capacity for turning out product. Much disappointment is expressed on account of the small demand for Agricultural Steel, which should be at its best at this season of the year. Buyers, however, have very bearish views regarding prices, and makers in many cases refuse to book orders at prices offered. We quote as follows: Crucible Spring Steel, 3½¢ @ 4¢; Tool Steel from 6½¢ upward, according to quality, and Bessemer Machinery, Tire and Spring Steel from 2¢ up to 2.40¢, according to quality.

Muck Bar.—The demand continues very small and no improvement is expected. We note a sale of 600 tons of high grade Muck Bar at $25, delivered at buyers' mill, and 160 tons at $24.60, same delivery. We quote the market at $24.50 @ $24.75, delivered at buyers' mill.

Wrought-Iron Pipe.—We are advised of a number of very fair orders having been placed recently, and considerable business is in sight. Prices, however, do not improve to any extent, although it is reported that there is not as much cutting done now as formerly. Discounts are as follows: Butt, Black, 57½ %; Galvanized, 47½ %; Lap, Black, 67½ %; Galvanized, 55 %; Boiler Tubes, up to 2¼ inch inclusive, 55 %; 3 inch and larger, 65 %; Casing, 55 %; Inserted Joint Casing, 50 %. Makers continue to shade these discounts considerably.

Barb Wire.—The passage of a law by the Minnesota Legislature requiring all railroads whose lines enter that State to inclose them with a Barb Wire fence is causing a very heavy demand for this class of Wire. The demand for Plain Wire is also very good and makers all over the country have had a very good season as far as business is concerned, although prices were not altogether satisfactory. We quote as follows: $2.25 @ $2.30 for Painted, and $2.70 @ $2.75 for Galvanized, f.o.b. at factory, the lower prices named being on carload lots.

Wire and Cut Nails.—A slight increase in the demand for Wire Nails is reported, due no doubt to the extremely low prices now ruling. Several of our mills here are said to be out of the market, and are not meeting the low prices now being made. We quote at $1.55 @ $1.60 in carloads, and $1.65 in less quantities. The situation in Cut Steel Nails does not show any change. Arrangements for the consolidation of the Wheeling Iron and Nail Company, Benwood Iron Works, Belmont Nail Company and Wheeling Steel Works have about been concluded, and the consolidation will become operative on July 1 next. It is said the question of the erection of a Wire Nail factory in Wheeling will be brought up by the new concern before long. We quote as follows: $1.47½ @ $1.50 for carload lots, 30¢ averages, f.o.b. in Wheeling and Mahoning Valley district.

Manufactured Iron.—Elsewhere in this issue we print the new wage scale as formulated by the Bar Iron makers in the Mahoning and Shenango valleys and Cleveland district. As will be noticed, large reductions have been made in nearly every department, the price of puddling having been reduced from $5.50 to $4.50 per ton on a 2 cent card. Muck rolling has also been materially reduced, while large reductions have been made in the wages of heaters and rollers. We are advised that manufacturers of the above places have a thorough understanding among themselves, and that this scale is in the nature of an ultimatum from them from which they will not recede. It is a well known fact that the best of feeling does not exist between the valley Iron makers and those of Pittsburgh, the charge being made that Pittsburgh has broken faith in a number of instances in which the support of the valley makers was secured on promises made by Pittsburgh, but which it is claimed were not kept. While this may be true in some cases, we are inclined to believe that without the support of Pittsburgh the valley makers will not be in a position to make as strong a fight against the Amalgamated Association should a strike occur as will be necessary in order to defeat that organization. As yet nothing definite has come from Pittsburgh manufacturers as to what course they will pursue when the time comes to meet the Amalgamated Association in conference and fix up the yearly scale. It is admitted on all sides that a reduction in price of labor must be made, but just how much the Pittsburgh makers have not yet expressed themselves. While it is no doubt possible that a scale similar to the Mahoning Valley scale would be acceptable to Pittsburgh, still, on the other hand, were a scale presented by the Amalgamated Association in which the reductions were not as large, it is possible that it might be accepted by Pittsburgh in order to avert a fight. That a reduction must be made is evident, but just how much will satisfy Pittsburgh is uncertain. As we noted last week, all the mills under the jurisdiction of the Amalgamated Association will be closed the first two weeks in July, commencing on the first Monday. This has caused quite a spurt in operation, and mills generally are working full time for the purpose of cleaning up orders and to have a stock on hand when the shut down comes. Prices on a few lines are somewhat firmer and we now quote No. 1 City Bars of the best grade at 1.60¢ @ 1.65¢, 60 days, 2 % off for cash. Bars which are not so favorably known in the market can be procured at a slight reduction from these figures. Bars made from Old Rails we quote at 1.47½¢ @ 1.50¢; Steel Sheared Plates, 1.80¢ @ 1.90¢; Iron Sheared Plates at 1.75¢ @ 1.85¢; No. 24 Sheet at 2.40¢ @ 2.50¢, 60 days, 2 % off for cash.

Skelp Iron—Is firmer and we have advanced prices slightly, and now quote as follows: 1.55¢ @ 1.60¢ for Grooved and 1.62½¢ @ 1.67½¢ for Sheared, four months, or 2 % off for cash.

Old Rails.—We are not advised of any transactions since our report of last week. In the absence of business we make nominal quotations as follows: Short lengths Old Steel Rails, under 6 feet, which do not require sorting, at $15 75; miscellaneous lengths are held at $15.25 and long lengths $16.25. Old Iron Rails may be quoted at $19, delivered in the Mahoning Valley.

Scrap Iron and Steel.—The situation has not changed since our report of last week, and it would be hard to imagine a more demoralized condition than now exists in the Scrap Iron and Steel business. The demand is next to nothing, and stocks are very large and are being rapidly increased. A good bit of inferior Scrap is in the market which is being offered at extremely low prices and which is having a bad effect on the good quality of Scrap. We quote the market as follows: No. 1 Railroad Wrought Scrap, $14.50 @ $15 ℔ net ton; Cast Scrap, $11 @ $11.50 ℔ gross ton; Billet and Bloom Ends, $15.50 @ $15.75; Cast-Iron Borings, $7.50 @ $8 ℔ gross ton; Mixed Country Steel, $13 ℔ gross ton; Railroad Coil Springs, $17 @ $17.50 ℔ gross ton; Leaf Springs, $19.50 @ $20.

Detroit.

WILLIAM F. JARVIS & Co. of Detroit, Mich., report as follows under date of June 8, 1892: A perfect flood of inquiry for Lake Superior Charcoal Iron exists at present. The call is apparently general, as it embraces both large and small consumers, and is from widely-separated localities, though chiefly in the East. This certainly makes a brighter outlook for this staple, as the demands already satisfied during the past 30 days, together with the large present buying and inquiry, will make a very large tonnage in the aggregate, and, without doubt, if authentic reports are made, will show a large falling off, in fact, a striking diminution of the large stocks which have menaced us so long. Prices, we must report, have in no way bettered, and at the same time have not sagged in any way. The Charcoal Iron men (with other furnacemen) have been such long sufferers that the unexpected larger demands have caused a much more hopeful feeling. A fair business in small

lots of Southern Coke Irons has been done. No large transactions, however, have been reported. On other grades—Northern and Jackson County Silveries—the call has been but in car lots, and the market dull and unchanged. We report prices as follows:

Lake Superior Charcoal, all numbers	$16.50 @ $17.00
Lake Superior Coke, Bessemer	16.00 @ 17.00
Lake Superior Coke Foundry, all ore	16.50 @ 17.00
Ohio Blackband (40 per cent.)	17.00 @ 17.50
Southern No. 2	15.00 @ 15.50
Southern Gray Forge	13.25 @ 13.75
Jackson County (Ohio) Silvery	17.75 @ 18.25

Cleveland.

CLEVELAND, OHIO, June 6, 1892.

Iron Ore.—While the receipts of Iron Ore at this port the past week have been rather light, they far exceed the receipts for the corresponding week in 1891. The cause of this temporary cessation of Ore receipts can be attributed in a measure to the strike of the Ore handlers at the head of Lake Superior. Although the trouble lasted but a few days it had a demoralizing effect on Ore rates. Brokers and vessel owners were much worried over the situation. Not knowing how long the strike would last they grabbed at almost everything in sight rather than remain tied up at the Ashland docks. But the old rate has been restored, and the cost of bringing Ores from the Upper lakes continues in favor of the Ore men. The rate for cargoes from Escanaba is now 65¢ ℔ ton, and from Ashland, or the head of Lake Superior, $1.10, with the Marquette rate somewhere between these two extremes. The total amount of Ore received at this port during the month of May was 153,296 tons, as compared with only 4283 tons during the corresponding month in 1891. The shipment of Ore to the furnaces continues at a good pace. During the past week 28,902 tons found their way to the furnaces, and during the month the total amount reached 81,385 tons. This was an increase of nearly 60,000 tons over 1891. Quotations for Ore are as follows:

No. 1 Specular and Magnetic Ores, Bessemer quality	$5.00 @ $6.00
No. 1 Specular and Magnetic Ores, Non-Bessemer quality	4.25 @ 4.75
Red Hematite Ores, Bessemer quality	4.25 @ 4.50
Red Hematite Ores, Non-Bessemer quality	3.50 @ 4.00

Two or three sales of Red Hematite Bessemers at $4.25 @ $4.50 ℔ ton are reported. Non-Bessemers are bringing about $3.50, but are not very firm at these figures. An improvement for the better in the Pig-Iron market would quickly infuse new life into the Ore trade.

Pig Iron.—Although local dealers have been advised of an improvement in the condition of the market in other Iron centers they stoutly maintain that there has been no change in the situation here. The market is as dull and featureless as ever. Several more furnaces have about worked up their raw material, and will soon go out of blast. Production is being so constantly reduced that it seems absolutely certain that there must soon be created a demand that will mean better prices. No sales of any consequence are reported, and none of much consequence seem likely to occur for some time to come. Furnacemen are watching the Iron-Ore market closely, and seem to believe that no occasion exists for completing their purchases just at present. Nominal quotations are as follows:

Nos. 1 to 6 Lake Superior Charcoal	$17.50 @ $18.05
Nos. 1, 2 and 3 Bessemer, per ton	15.00 @ 15.20
No. 1 Strong Foundry, per ton	15.00 @ 15.50
No. 2 Strong Foundry, per ton	14.00 @ 14.50
No. 1 American Scotch, per ton	@ 15.60
No. 2 American Scotch, per ton	@ 14.60
No. 1 Soft Silvery, per ton	15.50 @ 16.50
Mahoning and Shenango Valley Neutral Mill Irons, per ton	13.50 @ 14.00
Mahoning and Shenango Valley Red Short Mills, per ton	14.00 @ 14.50

Scrap.—The market is as dull as it possibly can be. But very few sales are reported, and those are exceedingly small. Dealers give out the following quotations to-day: No. 1 Railroad Wrought, $16 @ $16.50; Cast Scrap, $12 @ $12 50; Wrought Turnings, $11 @ $11.50, and Cast Borings, $8 @ $8.50.

Nails.—The Nail market is fairly firm, but there is still a demand for Wire. Steel Cut and Steel Wire Nails are each quoted at $1.65.

Old Rails.—The market is dull, and there is only a slight demand for Old Americans even at $20 @ $20.50.

Manufactured Iron.—The demand continues excellent, and the mills are well engaged for some time to come.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fourth and Main Sts., CINCINNATI, June 8, 1892.

There has been absolutely no quotable change in the Iron market during the past week. There are no large sales to report, although there have been efforts to buy round lots for forward delivery, but at such concessions that the furnaces would not entertain them. The volume of small sales has been quite large in the aggregate, although small individually. The deliveries on old contracts have been large, and the current consumption is evidently mainly supplied from this source. The melting of Iron is apparently very large in nearly all branches of consumption. The Iron Pipe works are running nearer to their full capacity than they have done at any time this season. The car works and repair shops are full of orders, and most of the foundries are more than usually busy. Buyers of Iron claim that they are able to secure all they need at less than quotations, but if so there is an unusual secrecy about the transactions, for sellers acknowledge nothing of the kind, and the leading furnaces are emphatic in their denials. It is probably true that small buyers of Iron can purchase as cheaply as they could secure large quantities. It is now evidently a fight between buyers and sellers, the contest being which can stand off the longest, and the chances seem to be in favor of sellers. Quotations unchanged:

Foundry.

Southern Coke, No. 1	$13 75 @ $14.00
Southern Coke, No. 2	12.75 @ 13.00
Southern Coke, No. 3	12.25 @ 12 50
Ohio Soft Stone Coal, No. 1	16.00 @ 16.50
Ohio Soft Stone Coal, No. 2	15.00 @ 15.50
Mahoning and Shenango Valley	16 60 @ 17.25
Hanging Rock Charcoal, No. 1	19.75 @ 20.00
Hanging Rock Charcoal, No. 2	19.00 @ 19.50
Tennessee and Alabama Charcoal, No. 1	16.50 @ 17.00
Tennessee and Alabama Charcoal, No. 2	15.50 @ 16.00

Forge.

Gray Forge	11.75 @ 12.00
Mottled Neutral Coke	11.25 @ 11.50

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	18.75 @ 19.00
Lake Superior Car Wheel and Malleable	17.75 @ 18.00

Louisville.

LOUISVILLE, KY., June 4, 1892.

If any change can be recorded at all since our last report it is to a firmer market. Locally we have not been disturbed by the storms and floods that have caused such heavy losses and stoppage of business in other sections.

Some consumers who are of the opinion that nothing would be lost by placing their orders for this year's requirements think it prudent to await the result of the meeting of the Amalgamated Association next week before doing so. While indications point to a favorable and speedy adjustment of the wages scale, this is not known positively, and the shadow of a doubt in the present condition of affairs is sufficient excuse for holding off.

The hand to mouth policy pursued by buyers for the past several months has been productive of two good results—a healthy condition of the trade and showing to both consumer and producer the exact condition of stocks in both hands. Whether under the conditions existing this is the wise policy now, when Iron is 10 to 15 per cent. lower than ever known and lower than cost, remains to be seen. We quote for cash, cars, Louisville:

Southern Coke, No. 1 Foundry	$13.75 @ $14.25
Southern Coke, No. 2 Foundry	12.75 @ 13.25
Southern Coke, No. 3 Foundry	12.00 @ 12.50
Southern Coke, Gray Forge	11.50 @ 12.00
Southern Charcoal, No. 1 Foundry	15.75 @ 16.75
Southern Car Wheel, standard brands	18.00 @ 19.00

St. Louis.

Office of *The Iron Age*, Bank of Commerce Building, ST. LOUIS, June 6, 1892.

Pig Iron.—It is extremely difficult to trace any change in the Iron trade. Sales are confined to small lots to supply immediate needs. To make the situation even more trying, the Mississippi has again commenced to rise and is now nearly as high as it was two weeks since, and business from points east of the river is much retarded. Consumption is only fair. The stove manufacturers are preparing for their annual shut down, and architectural foundries, while they are kept quite busy, are complaining on account of the low prices at which they are compelled to accept business. Gray Forge continues weak and unsettled and sales are freely made on the basis of $8.75 at the furnace. There is nothing in the situation which can be called encouraging. Furnaces continue accumulating stocks faster than the consumptive demand calls for, and the outlook for any improvement in prices is gradually diminishing. Some low prices are made for long deliveries, which is of itself an indication that prices are not likely to show much improvement in the near future. For ordinary quantities we quote as follows, for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry,	$14.00 @ $14.25
Southern Coke, No. 2 Foundry,	13.25 @ 13.75
Southern Coke, No. 3 Foundry,	12 50 @ 13.00
Gray Forge	12.25 @ 12.50
Southern Charcoal, No. 1 Foundry	16 25 @ 16.75
Southern Charcoal, No. 2 Foundry	15.50 @ 16.00
Missouri Charcoal, No. 1 Foundry	14.50 @ 15.00
Missouri Charcoal, No. 2 Foundry	14 00 @ 14.25
Ohio Softeners	17.00 @ 17.25

Bar Iron.—The market continues weak and unsettled. There is a slight undertone of strength which may make itself felt in values before long. At the moment prices remain unchanged and the demand is only moderate. Lots from mill are quoted at 1.60¢ @ 1.62¢, half extras. Lots from store are quoted at 1.67½¢ @ 1.72½¢, full rates.

Barb Wire.—There is no change to note in this department. There is a fairly active demand and prices can be quoted firm, as follows: Painted, from mill, $2.30 @ $2.35; Galvanized, $2.75 @ $2.80; less than car lots 10¢ ℔ cwt. additional.

Wire Nails.—Demoralization reigned supreme in Wire Nails during the major part of last week, although prices are a trifle more steady at this writing. Mills continue to run full time and are rapidly accumulating stocks. When these Nails are thrown on the market, which they will have to be at no distant day, it is quite probable that a lower range of values will result. Mills quote from 1.70¢ to 1.75¢, and it is reported that the inside price

mentioned has been shaded in a number of cases. There does not appear to be anything in the market to advance prices for some time to come.

(By Telegraph.)

Pig Lead.—The market is in a peculiar condition. Sales have been made at 4¢ and even lower and yet the market cannot be called weak. There is an apparent undertone of strength which has been manifest for some weeks past, and which will, no doubt, demonstrate itself once the demand shows the least sign of improvement. The outlook for any early improvement in the demand, however, is not very flattering, and yet, on the other hand, it is questionable whether prices will go much below those quoted above.

Spelter.—The condition of Spelter is, if anything, stronger than Pig Lead. While sales have been limited to carload lots prices have been fairly well maintained. Sales are reported at from 4.57½¢ to 4.60¢. For deliveries extending through July, 4.65¢ is asked. While there is not much demand the conditions do not favor lower prices.

Geo. G. Gray has been appointed manager of the St. Louis branch house of Chamberlain, Turney & Baird, vice John E. Cartwright resigned. Mr. Gray will also have the assistance of C. A. Stevenson, who has been connected with the Columbus office for some four years past. In a circular letter issued by the above firm they say. "These gentlemen are well-informed as to the requirements of the trade contiguous to St. Louis and a continuance of favors is solicited for them."

New York.

Office of *The Iron Age*, 96-102 Reade street, NEW YORK, June 8, 1892.

Pig Iron.—Consumers are doing a little better this month in the way of purchasing for the future than at any time last month, especially in taking standard brands. The buying movement is by no means general, however, quite a number of firms here reporting a continued unsatisfactory condition of business. It may be noted that shipments from furnaces are now heavier than they have been. Inquiries for Lake Superior Charcoal are in the market and negotiations are pending for round lots. One sale of 2000 tons for Eastern delivery is reported at a shade under $16 50 on dock at Buffalo. There is no change in quotations of standard brands of Pig Iron, but some lots are being pressed for sale at lower rates by representatives of Southern furnaces whose Iron is not yet well known. We quote Northern brands at $15.50 @ $16 for No. 1; $14.75 @ $15 for No. 2; $13.50 @ $14 for Gray Forge, tidewater. Southern Iron, same delivery, $15 @ $15.50 for No. 1; $14 @ $14.50 for No. 2 and No. 1 Soft; $13.25 @ $13.50 for No. 2 Soft; $13 for Gray Forge.

Spiegeleisen and Ferromanganese.—So little is doing in this line that sellers are disinclined to make any quotations, stating that it is almost impossible to say what might be done if there were any purchasers in the market. Some inquiry has developed for Ferromanganese, but importers are asking $61, which seems to discourage business.

Steel Billets and Rods.—Very little is now doing in Steel Billets in this section, and even inquiries are wanting. Freight rates from the West will be advanced on the 13th to the old schedule, which is about 30¢ higher from Pittsburgh than present charges. The quotation continues at $24.50, tidewater. The price of Wire Rods is firmly maintained by the mills, so that $35, tidewater, is still the rate for anything done in the regular way. Odd lots are, however, being offered from second hands at a shade under this figure.

Steel Rails.—Sales of about 4000 tons are reported by Eastern mills for the past week. They are now quite short of orders, but, nevertheless, are disinclined to cut prices, believing that the volume of business will not be increased to any extent by such a course, while all profit would be eliminated by the demoralization which would ensue. We continue to quote $30, at mill, or $30.75, tidewater.

Manufactured Iron and Steel.—The demand for Beams is large and on the increase. A contract was placed last week for the erection of a large building at the corner of Duane street and Broadway, which will require 2000 tons of Beams. Rumors are prevalent that two large office buildings are to be erected on Wall street. These are new projects. Quite a number of other buildings which have been long on the boards will soon be placed under contract. The volume of business in other lines of Manufactured Iron and Steel is quite fair, and those who are willing to make bottom prices are able to pick up a great many orders. Sales of Bar Iron in lots of 100 to500 tons are reported to rail roads and implement works. Nominal prices, subject to concessions on good specifications, are as follows: Beams, 2.25¢ @ 2.65¢ for small lots and 2.10¢ @ 2.50¢ for round lots, according to sizes; Angles, 1.9¢ @ 2¢; Sheared Plates, 1.85¢ @ 2.25¢; Tees, 2.30¢ @ 2.75¢; Channels, 2.25¢ @ 2.50¢, on dock. Car Truck Channels, 2¢ @ 2.10¢. Steel Plates are 1.85¢ @ 1.95¢ for Tank; 2.05¢ @ 2.25¢ for Shell; 2.35¢ @ 2.65¢ for Flange; 2.55¢ @ 2.75¢ for Marine, and 3¢ @ 3.25¢ for Fire Box, on dock. Bars are 1.7¢ @ 1.9¢, on dock. Scrap Axles are quotable at 2¢ @ 2.10¢, delivered. Steel Axles, 2¢ @ 2.1¢, and Links and Pins, 2.05¢ @ 2.20¢; Steel Hoops, 2¢ @ 2.10¢, delivered.

Merchant Steel.—Nothing new has transpired under this head. Quotations are continued — namely: Hot-Rolled Shafting, 1.90¢ @ 2¢; Machinery, 1.90¢ @ 2.10¢; Tire, 2¢ @ 2.25¢; Toe Calk, 2.20¢ @ 2.35¢, and Tool Steel, 5½¢ @ 6½¢, delivered.

Track Material.—Very little new business is to be reported in this line. Spikes are still quoted at 2¢ @ 2.05¢; Fish Plates, angle or plain, 1.60¢ @ 1.70¢; Track Bolts, square nuts, 2.65¢ @ 2.75¢, and hexagon nuts, 2.80¢ @ 2.85¢.

Old Material.—Old Iron Rails are nominally quoted at $17 in this vicinity; Old Steel Rails $13, and No. 1 Wrought Scrap $16.50. Transactions have been very light.

Stock Warrants.—The American Pig Iron Storage Warrant Company report as follows:

	Tons.
Stock in yard April 30, 1892	62,000
Put in yard for 31 days ending May 31, 1892	3,300
Total	65,300
Withdrawn 31 days ending May 31, 1892	2,800
Net stock in yard May 31, 1892	62,500

Minneapolis Furnace at Black Falls, Wisconsin, and owned by the York Iron Company, will be blown out the first week in July and the furnace plant removed to a more favorable location.

Metal Market.

Copper.—Except that a number of fair-sized parcels of Lake Superior Ingot have sold at slightly lower prices, say 11.85¢ @ 11¾¢, the market has been bare of new feature. As a rule, producers' representatives ask 12¢ for the article, and claim that sales at a lower price having been made under exceptional circumstances are no fair criterion to market value. The fact remains, however, that no better prices could have been secured at the time, and that some special inducement would have to be made in order to induce buyers to pay more money at the moment. Consumers are very indifferent buyers, since the majority have sufficient supply on hand or under engagement to meet their wants during the balance of the month, and are offered enough for later delivery to enable them to feel comfortable about the future. The outcome of the negotiations for limiting production has no perceptible influence upon this or the foreign markets. For Casting Copper there has been a rather better demand and the market is steady at 11¼¢ for ordinary sized parcels. The Government returns give the following statistics of exports from the United States:

Ore.

To	April 1892. Tons.	April 1891. Tons.	10 months ending Apr. 30, 1892. Tons.	10 months ending Apr. 30, 1891. Tons.
United Kingdom	3,336	3,445	27,405	31,106
Germany	826	464	2,160	1,432
Other Europe	165	....	265	817
Totals	4327	3,900	29,370	32,861

Ingots, Bars, &c.

To	April 1892. Pounds.	April 1891. Pounds.
United Kingdom	148,750	251,795
Germany	708,192	323,528
France	537,964	1,389,705
Other Europe	1,549,836	1,691,033
Other countries	.....	271
Totals	2,946,746	3,666,352

To	10 months ending April 30 1892. Pounds.	10 months ending April 30 1891. Pounds.
United Kingdom	12,445,321	4,671,512
Germany	7,225,912	1,493,439
France	19,074,106	9,019,529
Other Europe	14,482,097	7,173,731
Other countries	48,085	162,191
Totals	53,275,521	22,520,397

Pig Tin.—In the price of Straits there has been a further rise of 35¢ ℔ 100 lb, with an active speculative business at the advance. Fully 350 tons have changed hands, at up to as high as 21.90¢ for June, 22¢ for July, and 22.05¢ @ 22.10¢ for later deliveries. The movement is but a continuation of the one that has been in progress for several weeks and is characterized by the peculiarities that have prevailed heretofore. Tin is being shipped from London to this market steadily, and current report has it that arrangements have been perfected for sending hence all the stock due to arrive there during the month of June. Still, future deliveries command a premium in New York, while they are at a discount in London, and the selling of futures there has been quite heavy. The impression gains ground that a large "short" interest has been created in the English market, and that Tin may yet be drawn from New York for delivery on contracts in London. American Tin is quoted at 22½¢ in single ton lots, ex-store. A carload was reported to have been sold at 22¢, delivered, in Chicago.

Pig Lead.—Early in the week about 400 tons were sold at 4.20¢ and a transaction at 4.15¢ to make the "official quotation" was also reported. Since then business has been on a very moderate scale and the market has presented a flat appearance. Consumers buy in an extremely indifferent manner, and, for the time being, seem to have fixed upon 4.15¢

as their limit of price. From other sources inquiries involving more than a carload at a time are few and far between. No speculative interest is manifested.

Spelter.—Pending resumption of work at the flooded mines the cost of Ore continues high (about $26 per ton), and Spelter for prompt delivery is still held at comparatively high prices, as, for example, 4.90¢ @ 4.95¢ on the spot. On near future shipments the feeling is firm also, and none are offered at less than 4.80¢. Preparations are under way for resuming work at some of the mines, and consumers are therefore indisposed to purchase except as imperative wants necessitate. Hence a quiet though firm market for the present.

Antimony.—There has been about the ordinary demand and prices have undergone little change. Current quotations are 11⅞¢ @ 11½¢ for Hallett's, 12¢ @ 12½¢ for LX, 12½¢ for Crown and 14½¢ @ 14¾¢ for Cookson's, as to size and lot.

Tin Plate.—The spot market for J. B. grades, Cokes and some lines of large Terne Plate is a shade firmer, owing to reduced supply. Otherwise no change is to be recorded. Futures are held firmly, which fact tends to help the sale of spot goods in some degree, but business lacks the animation that might reasonably be looked for at this time and the response to best offerings is remarkably indifferent. Apollo brand American Ternes are offered at $6 for 14 x 20 and $12 for 20 x 28 in jobbing quantities; carloads about 12½¢ @ 25¢ less. We quote as follows for full weights: Coke Tins—Penlan grade, IC, 14 x 20, $5.25; J. B. grade, do., $5.37½; Bessemer do., $5.30; light weights, 100 lb, 10¢ less; 95 lb, 20¢ less; 90 lb, 30¢ less than full weight; Siemens Steel, $5.37½. Stamping Plates—Bessemer Steel, Coke finish, IC basis, $5.60 @ $5.65; Siemens Steel, IC basis, $5.75 @ $5.80; IX basis, $6.80. IC Charcoals—Melyn grade, ½ X, $6.40; for each additional X add $1.50; Allaway grade, $5.75; Grange grade, $5.85; for each additional X add $1.20. Charcoal Ternes—Worcester, 14 x 20, $5 75; do., 20 x 28, $11.30; M. F., 14 x 20, $7.37½; do., 20 x 28, $14.75; Dean, 14 x 20, $5.45; do., 20 x 28, scarce; D. R. D. grade, 14 x 20, $5.35; do., 20 x 28, $10.35; Mansel, 14 x 20, scarce; do., 20 x 28, $10.45; Alyn, 14 x 20, $5.45; do., 20 x 28, $10.65; Dyffryn, 14 x 20, $5.65; do., 20 x 28, $11. Wasters—S. T. P. grade, 14 x 20, scarce; do., 20 x 28, $10; Abercarne grade, 14 x 20, scarce; do., 20 x 28, $9.80.

Financial.

As the week closes the merchandise markets are more or less disturbed by the passage in the House of the so-called Hatch anti-option bill, and although members said there was little probability of the measure passing the Senate, there was a sharp decline in prices of grain and cotton. Corn dropped 2½¢ @ 3¢ ₱ bushel, while wheat declined ⅛¢. In cotton the market for futures suddenly declined 20 points. Earlier in the week attention was arrested by the utterances of Senator Sherman in his two days' speech against the Free Silver Coinage bill, in which he advocated a new ratio of silver to gold. Then he would have but one form of paper currency based upon one-third of gold, one-third of silver upon the credit of the Government backed by the provisions of the Resumption act under which the Secretary of the Treasury was authorized to sell bonds at any time to procure the coin to redeem the notes of the Government when redemption was demanded. He said further that the people of the country will not tolerate the banking system, and that it will become extinct with the final payment of the public debt.

The crop prospects are more satisfactory, so far as wheat is concerned, than they were a week ago. The plant has apparently taken good root in all the spring wheat districts of the Northwest. While the acreage may be a little less than that of a year ago, it may be taken for a fact, the *Northwestern Miller* says, that the acreage in the southern part of Minnesota and in South Dakota is enough larger than that of last year to go far toward bringing up the full acreage in the North. The prospects for winter wheat through the central West and through the Southwest are improved. The damage by floods in low ground, it is conceded, is very large, but of the full extent no estimate can yet be made.

In the stock market a break in the prices of the coal shares was the principal feature of the week, caused by the action of Western stockholders in the Lehigh Valley Railroad in beginning a suit to break the lease to Reading, and rumor had it that fresh litigation was expected from the shareholders of the Lehigh Navigation Company. The Philadelphia *Press* says: "In any event the proceedings in court are likely to be interesting and prolonged, and in the end not to have any important effect on the real fact in the case, which is the control of the production of anthracite coal by the Reading Company." News of the passage of the Anti-Option bill by the House started a selling movement, on account of its possible bearing on the coalers. Floods, as affecting crop prospects, had a retarding influence.

United States bonds are quoted as follows:

U. S. 4½s, 1891, extended	100
U. S. 4s, 1907, registered	116
U. S. 4s, 1907, coupon	117
U. S. currency 6s.	116

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, June 8, 1892.

A large business in Scotch warrants has been effected, without much variation in prices. English warrants for prompt settlement are scarce, holders being unwilling to part with the same, owing to rapid decrease in stocks. The Durham miners have resumed work at a reduction in wages of 10 %, although, contrary to expectations, this has not affected the price of Iron thus far, except Hematite warrants, which fell 1/9, but afterward recovered Several Hematite furnaces have been restarted. Stocks of Scotch Iron in Connall's stores have decreased to 444,000 tons, and those of Cleveland Iron are down to 55,000 tons. Exports last month were 74,000 tons, against 86,000 tons in May, 1891.

Pig Tin prices have advanced £1. 10/, moving up rapidly on reported large purchases for American account and covering of short sales. Sellers are becoming fewer. Visible supply on 1st inst. showed slight increase, but London stocks are again reduced, and remainder are in strong hands.

Copper advanced early in the week, owing to completion of arrangements to limit production by reducing output 5 %, Since then the movement has been irregular, with more active speculative trading. Sales of furnace material recently include 500 tons Anaconda Matte on private terms and 500 tons Montana Matte at 9/4½. Spot stocks and visible supply increased slightly last month. Chili charters the last fortnight were 1050 tons.

Business in Tin Plate has been meager, owing to advance in Tin and scarcity of Bars. There is good inquiry from Russia and Canada. A new company has been started to acquire the Gadlys works at Aberdeen. Exports last month were 35,000 tons, of which 23,000 tons went to the United States, against 62,000 tons and 55 tons respectively.

The Consett Steel Works are soon to be restarted.

Scotch Pig Iron.—The market for makers' Iron remains quiet, with very little change in prices.

No. 1 Coltness,	f.o.b.	Glasgow	53/6
No. 1 Summerlee,	"	"	52/
No. 1 Gartsherrie,	"	"	50/6
No. 1 Langloan,	"	"	51/6
No. 1 Carnbroe,	"	"	44/
No. 1 Shotts	"	at Leith	51/
No. 1 Glengarnock,	"	Ardrossan	50/6
No. 1 Dalmellington,	"	"	47/6
No. 1 Eglinton,	"	"	46/6

Steamer freights, Glasgow to New York, 1/; Liverpool to New York, 7/6.

Cleveland Pig.—Business slow, but makers' prices higher and very firm at 41/9 for No. 3 Middlesborough, f.o.b.

Bessemer Pig.—Demand has not improved, but makers' prices are held firmly at 52/ for West Coast brands, Nos. 1, 2 and 3, f.o.b. shipping port. Warrants closed at 50/6.

Spiegeleisen.—The market remains very quiet and unchanged. English 20 % quoted at 77/6, f.o.b. shipping port.

Steel Rails.—No improvement in the demand and former prices asked. Heavy sections quoted at £4. 2/6, f.o.b. shipping port.

Steel Blooms.—Very quiet market, with prices unchanged. Makers quote £4 for 7 x 7, f.o.b. shipping point.

Steel Billets.—Slow business, but makers hold for old prices. Bessemer, 2½ x 2½ inches, quoted at £4. 5/, f.o.b. shipping point.

Steel Slabs.—Market remains quiet and unchanged. Bessemer quoted at £4. 5/, f.o.b. at shipping point.

Old Iron Rails.—A moderate business passing at former prices. Tees quoted at £2. 17/6 and Double Heads at £3, f.o.b.

Scrap Iron.—Prices remain steady but only a moderate business passing. Heavy Wrought Iron quoted at £2. 10/ @ £2. 12/6, f.o.b.

Crop Ends.—Market remains dull and without change. Bessemer quoted at £2. 12/6 @ £2. 15/, f.o.b.

Manufactured Iron.—There is no improvement in the demand and prices are barely steady. We quote, f.o.b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Ordinary Marked Bars	8	10	0	@		...	
" Common "	6	5	0	@	6	7	6
Staff. Bl'k Sheet, singles....	7	5	0	@	.....		
Welsh Bars (f.o.b. Wales)....	5	10	0	@	.....		

Tin Plate.—Holders very firm at slightly advanced prices. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade	14/ @ 14/6
IC Bessemer Steel, Coke finish	12/6 @ 12/9
IC Siemens " " "	12/9 @ 13/
IC Coke, B. V. grade 14 x 20	12/6 @ ....
Charcoal Terne, Dean grade	12/ @ 12/3

Pig Tin.—Market closed very firm. Straits quoted at £100. 5/, spot, and £99. 15/ for three months.

Copper.—Barely steady market at the close. Merchant Bars quoted at £46. 10/, spot, and £46. 17/6, three months' futures. Best selected, £51.

Lead.—Business fairly active and prices steady at £10. 15/ for Soft Spanish.

Spelter.—A fair business passing and the market firm at £22. 12/6 for ordinary Silesian.

HARDWARE.

Condition of Trade.

MANUFACTURERS in several lines report a very satisfactory business and have some difficulty in filling orders promptly. Others, however, refer to the demand as irregular and of only moderate volume. Jobbing houses in representative Hardware centers report a slight increase in trade and refer especially to the demand for seasonable goods. In Builders' Hardware business is not up to expectations. On the whole there is probably little reason for complaint and it is thought that the month's business will not be materially different from that of last year. In the matter of prices there is little to report. Few changes of importance have occurred during the past week. The market is characterized by about the same tone as for some time past. It certainly is not stronger and is perhaps in some staple lines a shade weaker. Prices are, however, generally on a low level and manufacturers are not in a position to make further concessions. Collections are fair, but there is some complaint in regard to them.

St. Louis.

(*By Telegraph.*)

The movement in Hardware continues to show a very encouraging increase. There is a steady demand for nearly everything which is carried in stock. Agricultural Tools and Implements, of course, are more active than almost any other line of goods. Builders' Hardware and Tools are also in good demand. Wire Nails are still in a demoralized condition and jobbers are all at sea regarding prices. It is enough to say, however, that $1.65 at store will buy lots from ten kegs up, and jobbers do not appear at all backward about accepting orders at this price. Barb and Plain Wire are in good shape, and jobbers quote from $2.45 to $2.50 for Painted Barb Wire, with the usual advance of 45 cents per hundredweight for Galvanized. Prices are fairly steady in nearly all the lines, although the tendency is towards lower prices. Collections are good.

Chicago.

(*By Telegraph.*)

So far this month jobbers have found very little encouragement in the condition of the market. Business has not picked up with the same rapidity that they expected, and the outlook now is that June will be a duller month than May. The season is so far advanced that country consumers will be forced to give all their time to agricultural pursuits and will be compelled to defer new improvements and repairs. Country dealers are withholding their orders and buying only so much of the different stocks of staple goods as are necessary for sorting up their stocks and seasonable articles, such as Wire Cloth, Garden Tools, Poultry Netting, &c. Frequent complaints are still heard that Poultry Netting is so scarce that orders cannot be filled promptly; but we learn from several of the leading manufacturers, among them the Gilbert & Bennett Mfg. Company, that they have on hand abundant stock from which they will be pleased to make prompt shipment to any of the dealers who are in want of this class of goods. Heavy Hardware is in good demand, and jobbers note prices steady and firm. There has been a good trade the entire spring on Wagon and Carriage stocks and Blacksmith Tools.

Notes on Prices.

Wire Nails.—The Wire Nail market is in an unsatisfactory condition and is characterized by some unevenness. $1.50 to $1.55 is a general quotation, but the lower of these figures is shaded. Some manufacturers, however, refuse to meet extreme quotations current. It is understood that some good-sized orders have been placed, but the trade seem indisposed to avail themselves very liberally of the opportunity to purchase at the low prices ruling, being willing to take their chances of purchasing at the same or lower prices hereafter. Small lots from store in New York are held at $1.80 to $1.85.

Chicago, by Telegraph.—The trade will probably not be surprised to learn that Chicago jobbers are selling Wire Nails out of stock at less than prices quoted them by manufacturers. The large blocks of Nails that were unloaded in this market some time ago at prices unnecessarily low have put the jobbers in a position to do this, and they are taking advantage of the opportunity. Manufacturers are now asking $1.65 @ $1.70, Chicago delivery, and some of those who were heretofore the lowest sellers declare that they have no Nails they will sell at less than these prices. There is only an ordinary demand, principally in small lots, on which jobbers are quoting $1.60 rates from stock. There are no carload orders in the market, but it is probable that jobbers would not sell even in this quantity at a much less figure.

Cut Nails.—The Nail market covered by the Eastern Association presents to the casual observer substantially the same appearance as for the past few weeks. The agreement between the mills, by which their price is on the basis of $1.55, at mill, for Steel Nails on a 25 or 35 cent average, freight being equalized with competing points, is in general well maintained, and the bulk of general business is on this basis. There are, however, indications that some of the mills to secure orders, especially where they have to compete with Western Nails, have made concessions during the past week, bringing the quotation down to a figure lower than has heretofore been made. In the West the situation is practically unchanged, but prices are perhaps a shade weaker. Quotations for carload lots of Steel Nails at Western mills are on a basis of $1.42½ to $1.45 on a 30-cent average. On the regular prices of the Eastern makers a concession of 3 cents a keg is made on Iron Nails, and orders of 1000 kegs or more of either Iron or Steel Nails obtain a concession of 5 cents. Small lots from store in New York are held at $1.75.

Chicago, by Telegraph.—The market for Cut Nails seems to be a little stronger than it was a week ago. Eastern makers are asking $1.50 at mill, 25-cent average, which is equivalent to $1.65, Chicago. This appears to be a ruling price. Manufacturers are very conservative in taking orders, many of them refusing to quote prices for delivery after July 1. Jobbers are quoting $1.65 rates out of stock for small lots, but the price on mixed lots would likely be made the same as that on Wire Nails. The demand is very light and no prospect of improvement.

Barb Wire.—The Barb Wire market is without special feature. Prices remain without change, with only a moderate demand. Quotations are on a basis of $2 65 for Galvanized Four Point at mill in round lots. Small lots from store in New York command $3.10, carload lots obtaining a concession of 10 cents.

Chicago, by Telegraph.—Jobbers report that trade does not improve as rapidly as they expected since the first of the month. Manufacturers are sending out circulars quoting prices and seeking for orders. They have filled all back orders and are now taking up stock for fall trade, which they anticipate will be very large. Makers quote Painted Wire at $2.25 and Galvanized at $2.75 at mill. From store jobbers are quoting $2.50 for Painted and $3 for Galvanized in small lots.

Double-Pointed Tacks.—In reference to this line in our last issue it was erroneously stated that Double-Pointed Tacks in bulk are subject to the same discount as the goods in papers. The regular discount on the bulk goods is, however, 75 and 10 per cent. instead of 90 per cent., as on the papered goods, an extra 10 per cent. being given in special cases. In 10-pound boxes an addition of 3 cents is made to the list, and in 25-pound boxes 1 cent.

Hammers.— M. R. Warners & Sons, Cromwell, Conn., have recently issued revised list prices on their extensive line of Warners & Noble Hammers. Their list is

given below and is subject to a discount of 25 and 10 per cent.

Machinists' Ball Pein Hammers.

	Weight. lbs.	oz.	Per doz
No. 1, Solid Cast Steel	0	12.	$7.25
No. 2, " " "	1	0	9.30
No. 3, " " "	1	6	11.40
No. 4, " " "	1	10	13 00
No. 5, " " "	2	0	14.50

Jewelers' Ball Pein Hammers.

	Weight. oz.	Per doz.
No. A, Solid Cast Steel	1½	$5 00
No. B, " " "	3	6.00
No. C, " " "	6	7 00

Machinists' Straight Pein Hammers.

	Weight. lbs.	oz.	Per doz.
No. 1, Solid Cast Steel	0	12	$7.25
No. 2, " " "	1	0	9.30
No. 3, " " "	1	6	11.40
No. 4, " " "	1	10	13.00
No. 5, " " "	2	0	14.50

Jewelers' Straight Pein Hammers.

	Weight. oz.	Per doz.
No. A, Solid Cast Steel	1½	$5.00
No. B, " " "	3	6.00
No. C, " " "	6	7 00

Machinists' Cross Pein Hammers.

	Weight. lbs.	oz.	Per doz.
No. 1, Solid Cast Steel	0	12	$7.25
No. 2, " " "	1	0	9.30
No. 3, " " "	1	6	11.40
No. 4, " " "	1	10	13.00
No. 5, " " "	2	0	14.50

Jewelers' Cross Pein Hammers.

	Weight. oz.	Per doz.
No. A, Solid Cast Steel	1½	$5.00
No. B, " " "	3	6.00
No. C, " " "	6	7.00

Nail Hammers.

	Weight. lb.	oz.	Per doz.
No. 2, I. Warner's, joiners' size	1	0	$5.00
No. 3, " carp'rs' "	1	4	5.35
No. 4, " for spike...	1	10	6.80
No. 2, Newark Pat. Cast Steel.	1	0	6.50
No. 3, " " " "	1	4	7.40
No. 4, " " " "	1	12	8.90

Adze-Eye Hammers.

	Weight. lb.	oz.	Per doz.
No. 1, Solid Cast Steel	0	14	$6.25
No. 2, " " "	1	1	7.00
No. 3, " " "	1	4	8.00

Bell Face Adze-Eye Hammers.

	Weight. lb.	oz.	Per doz.
No. 1, Solid Cast Steel	0	14	$6.25
No. 2, " " "	1	1	7.00
No. 3, " " "	1	4	8.00

Riveting Hammers.

	Weight. lbs.	oz.	Per doz.
No. 00, Solid Cast Steel	0	1	$3.30
No. 0, " " "	0	2	3.00
No. 1, " " "	0	4	3.00
No. 2, " " "	0	7	3.60
No. 3, " " "	0	10	4.40
No. 4, " " "	0	15	5.30
No. 5, " " "	1	2	6.20
No. 6, " " "	1	5	7.00
No. 7, " " "	1	10	8.80
No. 8, " " "	2	0	10.50
No. 9, " " "	2	8	13.00

Blacksmiths' Hammers.

	Weight. lbs.	oz.	Per doz.
No. 0, Solid Cast Steel	2	7	$12.00
No. 1, " " "	3	0	14.50
No. 2, " " "	3	6	16.50
No. 3, " " "	4	0	19.00

Double Head.

	Weight. lbs.	oz.	Per doz.
No. 4, Solid Cast Steel	2	7	$12.00
No. 5, " " "	3	0	14.50
No. 6, " " "	3	6	16.50
No. 7, " " "	4	0	19.00

Masons' or Stonecutters' Drilling Hammers.

	Length.	Weight. lbs.	oz.	Per doz
No. 00, Solid Cast Steel,	5 in.	3	0	$17.50
No. 0, " " "	5½ "	3	8	19.25
No. 1, " " "	6 "	4	0	21.00
No. 2, " " "	6½ "	4	8	22.75
No. 3, " " "	7 "	5	0	24.50

Masons' Drilling Hammers, *unpolished*, will be furnished $1 less per doz.

Brick Hammers.

Solid Cast Steel.

	Weight. lbs.	oz.	Per doz.
No. 1, Length 7 inches	1	8	$8.50
No. 2, " 8½ "	1	13	10.00
No. 3, " 8½ "	2	4	12.00

Roofing Hammers.

	Weight. lb.	oz.	Per doz.
No. 1, Solid Cast Steel	1	4	$7.00
No. 2, " " "	1	0	5.40
No. 3, " " "	0	11	4.50

Roofing Hammers with octagon faces at same price as square face.

Geologists' or Students' Hammers.

	Weight. lb.	oz.	Per doz.
No. 1, Solid Cast Steel	0	14	$6.00
No. 1½, " " "	1	4	7.50
No. 2 " " "	1	12	9.00

Brad Hammers.

	Weight. oz.	Per doz.
No. 00, Solid Cast Steel	1	$3.40
No. 0, " " "	2	3.40
No. 1, " " "	4	3 40
No. 2, " " "	7	3.90
No. 3, " " "	10	4.40
No. 4, " " " round pole	7	4 20
No. 5, " " " " "	10	4.75

Common Sense Nail Puller.

	Weight. lb.	oz.	Per doz.
Solid Cast Steel	1	10	$6.00

Wire Netting.—The market for Wire Netting continues without any specially new feature and with a good demand. We are in receipt from leading manufacturers of advices that notwithstanding reports of a shortage in the market they are now in a position to fill orders promptly.

Sash Balances, Sash Locks, &c.—Stewart & Baker, Rochester, N. Y., issue the following net price-list of their Common-Sense Sash Balance, Automatic Sash Locks, Sash Lifts, Broom Holders, &c. It is subject to a discount of 3 per cent. for cash in ten days:

Common-Sense Sash Balance.

	Per gross sets.
No. 1, for lightest sash	$54.00
No. 2, for all ordinary windows	72.00
No. 3, extra large	108.00

Automatic Sash Locks (center rail).

	Per gross sets.
Berlin Bronze	$7.20
Nickel Plated	18.00
Bronze Plated	18.00
Bronze	36.00

Sash Lifts.

	Per gross pairs.
Berlin Bronze	$4.50
Nickel Plated	9.00
Bronze Plated	9.00
Bronze	12.00

Broom Holders.

	Per gross.
Copper Bronze (for broom, mop, cane and umbrella)	$4.00
Nickel Plated	8.00

Monitor Sad Irons.

	Per dozen sets.
Nickel Plated	$11.00
Plain Polished	9.00

Glass.—There is little of interest to report in the Glass market, the situation being practically unchanged since our last report. Demand for Glass continues light, owing somewhat to the local strikes in the building trades. Prices on American Glass have not shown any additional strength during the past week, as bids of 80 and 15 to 80 and 20 per cent. discount have failed to secure desirable orders. French Glass shows somewhat of a stiffening in values, as there is a disposition on the part of importers to advance the price from 80 and 5 per cent. to 80 per cent. discount. American factories are filling orders for Glass which is to be delivered before the shut down, and are expecting little if any new business at this season of the year. Prices as quoted remain unchanged upon the following basis: American Window Glass, 1000-box lots or more, 80, 10 and 5 per cent. discount; carloads, 80 and 10 per cent. discount; less than carloads, 80 and 5 per cent. discount; French Window Glass, 80 and 5 per cent. discount; American Plate is held at a discount of 50, 10 and 5 per cent., and imported Plate at a discount of 60 per cent.

The Stanley Works Fire.

A FIRE BROKE OUT at 1.15 o'clock on the morning of June 2, in the tack factory of the Stanley Works Company at New Britain, Conn. The building and contents were totally destroyed. The loss is $75,000, with insurance of $40,000, distributed in 24 foreign and domestic companies, neither one having over $2000 on the risk. It was impossible to save the building from the first, which was of wood and well saturated with oil. The heat was intense and interfered with the work of the firemen. The large factory of the Russell & Erwin Mfg. Company, directly opposite, across the railroad tracks, was in great danger, and the firemen only saved it by directing all their efforts there. The fire lasted until 5 o'clock in the morning, when everything burnable was destroyed. The fire started in the boiler room and was discovered by the night watchman. The works of the Stanley Works Company proper were not injured. The Tack business was started in 1885 and gave employment to 100 hands. The building was 80 x 215 and was formerly occupied by the Thomson-Houston Electric Light Company. It was the worst conflagration in the city for over two years. President Hart of the company says that the works will be rebuilt at once. The company were running full time with heavy orders ahead. It is expected that a new factory will be built of brick, much larger and less liable to fire.

American Axe and Tool Company.

THE AMERICAN AXE AND TOOL COMPANY, Stewart Building, New York, have issued an elegant catalogue of Axes and Tools for export trade. The brands controlled by this company are as follows: Hunt's, D. Sharp's, Southern Star, Hunt's American Ideal, Hunt's Razor Blade, Blair's Victor, William Mann's, Blood's Champion, Lippincott's, Peerless, Underhill's, Criterion and Chopper's Pride. The catalogue is fully illustrated, the cuts being designed to show the various patterns of Axes, Edge Tools, Scythes and Hoes, the patterns being the same for all the brands named. A telegraph cipher is given, together with a table of weights and meas-

ures, which includes the net and gross weight and the cubic feet per dozen. The catalogue is printed on a fine quality of paper and the cuts are clear and distinct.

New York State Hardware Jobbers.

THE NEW YORK STATE ASSOCIATION of Hardware Jobbers held a regular meeting at the Troy Club, Troy, N. Y., May 27. The object of the session was the discharge of routine business and exchange of views as to the state of the trade. Those who attended were F. Barker and I. D. Booth, Elmira; B. M. Babcock, Binghamton; C. M. Ward, Albany; G. Dana, Utica; Robt. McCarthy, J. William Black, Geo. Kennedy and Charles Everson, Syracuse; Messrs. Hamilton, Palmer and Richmond, Rochester; Hobart Weed and C. E. Walbridge, Buffalo, and J. J. Tillinghast and C. W. Tillinghast, 2d, of Troy. In the absence of the secretary, J. W. Eager of Syracuse, J. Wm. Black of that city acted as secretary *pro tem.* Before adjourning in the afternoon the association decided to hold its next meeting in Buffalo, June 29, when the members will be the guests of Walbridge & Co. and Weed & Co. of that city. The annual meeting and election of officers of the association will be held at Rochester next September. After adjournment the mem bers and guests were pleasantly entertained at dinner at the Troy Club through the courtesy of J. M. Warren & Co. of Troy. There were present at the dinner as guests of Warren & Co., Wm. Kemp, Gen. Jos. B. Carr, W. P. Kellogg, F. W. Edmands, H. S. Darby and F. A. Leeds of Troy.

Trade Items.

HIBBARD, SPENCER, BARTLETT & CO., Chicago, have been obliged to secure enlarged storage capacity, and have recently taken possession of a handsome brick building on Michigan street, running back to North Water street. The building is 80 x 90 feet, six stories and basement, amply provided with elevator service and heated by steam. A side track runs directly past one side, affording convenient railroad facilities, and in the rear the largest boats on the lake can be unloaded. This building is but a few blocks from the house on Lake street, with which there is direct telephone connection. Driveways extend through the building from Michigan to North Water street, and teams can also be loaded and unloaded on both streets by using hinged skids.

HP NAIL COMPANY, J. C. McCarty & Co., 97 Chambers street, New York, agents, are offering the Columbia Wire Carpet Tacks, with 250 tacks in each package. These are put up in display cases of one gross each, assorted 6, 8 and 10 ounce, or all 8 ounce. The tacks may be had violet, blued or polished; in gold lacquered tin boxes; in toy barrels and in paper boxes.

ST. LOUIS HARDWARE AND CUTLERY COMPANY, St. Louis, under date June 2, issue a circular in which they refer to a notice recently published proclaiming a sale of their assets at public auction. They then state that the sale took place to gratify the demands of some of their stockholders. At the sale the active officers of the company were the purchasers, and it is announced that they propose under the old or a new name to continue the business at the old stand. The company suggest that a nice Nail order at this time will be a great encouragement to the new concern. Having bought the stock at a low price they are able and willing, they explain, to sell their goods at extra low prices. The circular is signed by Louis H. Kallemeier, Henry Garlich and William Cappelle.

KNIGHT & WALL, Tampa, Fla., have recently moved into a large and commodious store building, which is three stories and cellar. The building is constructed of iron and brick, situated on a prominent corner, having the equivalent of two fronts on one street, and running the length of the block on the other. The store front is composed of four large plate glass windows and two entrances, while the side has two show windows, and convenient entrances in the rear. The firm occupy the entire building, and pride themselves on having one of the handsomest and best appointed Hardware stores in the country.

HOLMES, BOOTH & HAYDENS, manufacturers of brass and copper goods, 25 Park place and 22 Murray street, New York, direct attention to their new and varied collection of Library Lamps, including Lamps with central draft burners, showing a large number from which assortments may be selected, having brought out 24 new patterns this year. They have also a large line of Banquet Lamps finished in gold plate, some with onyx bases and shafts, others gold and silver combined, together with Table and Piano Lamps, with onyx top and bottom and metal tops finished in silver. Besides those noted the company have an increasing line of Table Lamps finished in gold plate, with silver and ebony trimmings. They also refer to their Little Prince Extension and Table Lamps as having a large sale.

THE BIRMINGHAM BRASS COMPANY, New York office 24 Park place, J. B. Underwood agent, having recently absorbed part of the plant of the Osborne & Cheeseman Company, are now manufacturing a line of Brass and Copper goods, including Buckles, Corset Trimmings, &c., and have an extensive assortment of plain and fancy Brass Tubing in a variety of shapes and sizes. They have on exhibition in their office a curiosity which they feel assured is the smallest Brass Tubing yet made, being sufficiently large to allow the passage of a human hair, with little to spare While perhaps of little importance commercially, it illustrates the skill of workmen employed by them.

THE UPSON & HART COMPANY, Unionville, Conn, who manufacture a very large line of Hair Crimpers, advise us that they have sold during the past four months over 75,000 of the McAlister and Kate Field Crimper. A stock of these Crimpers is now in the hands of the Alford & Berkele Company, 77 Chambers street, New York, who are sole agents. The company are putting on the market other Crimpers which they are offering at low prices, and agents are wanted throughout the United States.

THE CHAPMAN MFG. COMPANY, Meriden, Conn., have opened a branch office at 115 Devonshire street, Boston, in charge of E. B. Holt, where a full line of Dog Collars, Dog Furnishing Goods, Sleigh Bells and Saddlery Hardware is shown.

THE WEEDSPORT DRILL COMPANY, Weedsport, N. Y., are preparing a new catalogue representing their goods, which will be issued shortly.

H. B. TODD, manufacturer, Meriden, Conn., announces a reduction of $1 per gross in the price-list of his well-known Yankee Eave Trough Hangers. This change applies to all sizes and went into effect June 1.

UNDER DATE May 25 announcement is made that R. R. Walling, formerly of Walling, Tyson & Zimmerman, Frederick, Md., with P. H. C. Birely, W. C. Birely and D. W. Gise, have organized the Walling Patent Shutter Bower Company. This company will manufacture the Walling Shutter Bower, patented January 27, 1891, at 18 and 20 East Patrick street, Frederick.

AN ILLUSTRATION of the Common-Sense Sash Balance which Stewart & Baker, Rochester, N. Y., are putting on the market, is given in their advertisement on another page, where some of the points made in regard to it are also enumerated, among which is the ease with which it is applied.

THE ARCADE FILE WORKS, New York office 83 Reade street, represented by J. E. Farrell, have transferred their works from Sing Sing, N. Y., to Anderson, Ind., the plant being almost entirely new, where, we are informed, they have erected shops capable of producing 2000 dozens of Files a day. Andrew Finnegan, who has been connected with the house for 40 years in various capacities, has entire charge of the manufacture of goods. The company will commence the preparation of a new catalogue in the early fall, embracing in addition to their own line the goods manufactured by the Harrisburg Handle Company and Kean & Doty Mfg. Company, whom they represent.

THE KEAN & DOTY MFG. COMPANY, New York office 83 Reade street, have just completed at Cleveland, Ohio, a new factory for the manufacture of a full line of Builders' Hardware, replacing the one recently burnt.

IN THEIR ADVERTISEMENT, page 115 in our last issue, Brittan, Graham & Mathes, Pittsburgh, illustrated one of their Front Door Sets in one of their leading designs. They report trade in a satisfactory condition.

AMERICAN STAMPING COMPANY, successors to Joseph Scheider & Co., manufacturers of stamped, pieced and japanned Tinware, Galvanized Ware, &c., Brooklyn, E. D., N. Y., and Portland, Conn., have for the convenience of the trade opened a commodious sample and salesroom at 104 and 106 John street, opposite Cliff street, New York, where a complete line of their goods will be carried.

MICHAEL GREENEBAUM'S SONS, Chicago, who have been long and favorably known as prominent jobbers, are now in business as manufacturers' agents, with offices 9 and 11 North Canal street, in that city. They have made arrangements, we are advised, by which they represent a number of leading houses whose goods they are in a position to market advantageously in view of their facilities and their extensive acquaintance. They expect to make direct shipments from the factories which they represent, and are still, we are advised, open for one or two desirable agencies. In this new business, so closely related to that with which they have been identified, they will have the best wishes of the trade for their success.

WE ARE INFORMED by James S. Scranton, sales agent of the Oxford Iron and Nail Company, 81 to 85 Washington street, New York, that the long and vexatious strike among their employees, which has continued for the last six months, has been amicably settled, the men going back to work last week.

POPE'S ISLAND MFG. CORPORATION, New Bedford, Mass., and 35 Warren street, New York, are putting on the market a

line of Horse Bits, Harness and Carriage Trimmings. These goods are made of the Howard non corrosive metal, which, it is claimed, will never turn black, rust nor corrode, and will always retain its color. For the Horse Bits the manufacturers claim that they are hand made, and every one tested. The point is made that the solid metal is polished and not plated; that there is no plating to peel off and cause irritation; that the metal will not hold frost, and will not stick in cold weather, and that they are easy to keep clean and bright.

It Is Reported—

That Chisholm & Farrell, dealers in Agricultural Implements, Haywards, Cal. recently suffered a loss by fire.

That J. Henrich, Chicago, has sold out his Hardware and Stove business. William Noebling will continue it at the old stand

That Schoengen & Co., have succeeded Charles Klapp in the Hardware and Stove business at Chicago

That Millburn Bros. is the style of a new firm which has recently entered the Agricultural Implement business at Jasper, Ind.

That H. C. Tinney has retired from the Johnson-Tinney Hardware Company, Lafayette, Ind.

That Herman Wier recently commenced the retailing of Implements at Hawkeye, Iowa.

That Pringhar, Iowa, has a new Implement firm, the style of which is Stewart & Rollins.

That the Pierson Hardware Company are a new concern at Minneapolis, Minn.

That Wolterstorff, Haskell & Co., Hardware merchants, St. Paul, Minn., are closing out their business.

That J. S. Hall succeeds L. Palmer in the Hardware business at Monticello, Iowa. Mr. Palmer retires at the age of 75 years, after having been in business at that place for 20 years.

That the partnership of Haight & Burns., Crete, Neb., dealers in Hardware, Stoves and Tin, has been dissolved, Mr. Haight continuing the business.

That Small Bros., Buckley, Wash., were recently damaged by fire. The loss was $3000, on which there was an insurance of $2800.

That R. B. Wooley, successor to Wooley & Goodsill, Hardware dealers at Clear Lake, Minn., has moved his stock of Hardware to Oberon, N. D.

That J. B. Stetson has purchased E. S. Bailey's Hardware store at Silver Creek, Neb.

That Hewitt Bros., Hamilton, N. D., have taken possession of their new Hardware store.

That Michael Maher is erecting a store building at Preston, Iowa, and will put in a stock of Hardware.

That there is an opening for a dealer in Hardware, Tinware, Stoves, &c., at Centerville, Mass.

That S. W. Pratt, Hardware and Stove dealer, Weymouth, Mass., was damaged by fire on the 29th ult. to the extent of $400. Fully insured.

That Buechner & Co.'s Hardware store at Kalmazoo, Mich., was burglarized on the 24th ult.; $40 in cash was secured by the miscreants.

That William Krueger & Co., Neenah, Wis., are enlarging their Hardware store by a three-story addition in the rear.

That articles of incorporation have been filed by the California Hardware Company, Los Angeles, Cal., for the purpose of carrying on a general retail and wholesale Hardware business. The capital stock is $100,000, of which $39 200 has been actually subscribed. The board of directors consists of J. A. Henderson, W. F. Marshall, T. J. Weldon, Alice Henderson and Olive G. Marshall, all of Los Angeles.

That Walter Bros. & Stevens, Ravenna, Ohio, have opened a new Hardware store.

That L. F. Holloway and E. C. Johnson have commenced the Hardware business at Janesville, Wis.

That Derrig Bros. & Co., Hardware dealers at Superior, Wis., have dissolved.

That F. M. Finch, Hardware dealer, White Water, Wis., has been succeeded by a new firm under the style of F. M. & M. M. Finch.

That Rhea, Seehorn & Co., Johnson City, Tenn., have sold their stock of Hardware to Bering & Cameron of Elizabethtown.

That J. W. Sinclair has sold his interest in the Hardware store at Waterloo, Ind., to A. J. and A. V. Sinclair, who will consolidate the Hardware and grocery business at the old stand.

That W. R. Bowman has purchased the interest of his partner, Edward Dupee, in the Hardware business at Forest, Ohio.

That G. A. Clark, Hardware merchant at Earlville, N. Y., will remove to Sidney.

That J. W. Leighton has purchased a Hardware store at Bode, Iowa

That T. A Reinhart has purchased an interest in the Hardware store of F. B. Collins, Elgin, Ore.

That in a fire at Rockford, Wash., on the 13th ult., the Hardware store of McCrea & Co. was destroyed.

That N. D. Cool is about embarking in the Hardware business at Costello, Pa.

That Clayton Rittenhouse has sold his interest in the Independence Hardware Company, Independence, Mo., and contemplates going into business at Lee's Summit.

That the Wilson Hardware Company, Colorado Springs, Col., have filed articles of incorporation. The capital stock is $5000.

That D A Rankin & Co., Hardware dealers, Henry, S. D., have disposed of their business to P. L. Dickinson & Sons, Zumbrota, Minn.

The Sweeting Cycle Company.

THE SWEETING CYCLE COMPANY, Philadelphia, Pa., advise us they are doing a large and increasing business in imported and home-made machines. They have recently removed from their original quarters at 637 Arch street, Philadelphia, to more spacious premises at No. 815 on the same street, where they state they have now opened one of the handsomest and most complete stores in the country, with every facility for the display of goods, repair and attention of machines and large storage capacity. The present establishment occupies a deep four story house, with working basement, and is fitted throughout for the requirements of the business. The retail department is 140 feet long by 25 feet wide, handsomely carpeted throughout, giving one the impression of a parlor with its easy chairs and tasteful decorations. In it some 120 Bicycles of all descriptions are displayed, from the serviceable roadster to the light 20 inch wheel, as well as numerous specimens of Children's Tricycles and other fancy goods. At the rear are the offices, and back of them the receiving and shipping yard. On the floor above are stored the reserved stock, second hand and shop-worn machines, while the third floor is used partly for storage and partly fitted as a machine shop for the carrying of repairs, as well as for fitting the cushion and pneumatic tires, the imported Cycles being received without those adjuncts. In the uppermost story are warehoused all the different fittings, including Saddles, Handles, Pedals, Lamps, Bells, &c., with various spare portions of machines in large quantities. All the several parts of the Bicycles are interchangeable, so that a broken portion can at any time be returned and immediately replaced by a similar one. The basement is used exclusively for storage of stock. Seven hundred machines of all grades and sizes are at present carried in stock, but there is storage capacity for many more.

The Sweeting Cycle Company are sole agents in the United States for the well-known English firm of Bayliss, Thomas & Co. of Coventry, the makers of the Excelsior Safety Bicycles, and who, it is stated, were the builders of the first Bicycle ever made in Coventry, the home of the manufacture in England. This firm has lately erected a new factory for their American trade. They make the Belmont Safety specially for the Sweeting Company. The Quadrant Cycle Company of Birmingham, England, have also made the company their exclusive agents in America, and they are as well the wholesale agents in the Middle and Southern States for the Phœnix and Paragon Bicycles of the Stover Bicycle Mfg. Company of Freeport, Ill. The Sweeting Company state that they are importing some hundreds of thousands of dollars' worth of Wheels annually, and are supplying them to all quarters of the country. A large trade with the Western States has developed of late, notwithstanding the fact that the freight very materially increases the cost of the machines.

Price-Lists, Circulars, &c.

SCHOVERLING, DALY & GALES, New York: Summer Sporting Goods. Their catalogue of these goods includes Lawn Tennis, Base Ball Goods, Hammocks, Outing Clothing, Fishing Tackle, &c. These goods are illustrated, with descriptions and prices.

PECK, STOW & WILCOX COMPANY, Southington, Conn., and 27 Chambers street, New York: Squaring Shears, Bench, Hand and Circular Shears, Machines for cutting and shaping sheet metal. Their catalogue devoted to these goods gives illustrations and prices, with descriptions of the various machines.

ALFRED C. REX & Co., Frankford, Philadelphia, Pa.: Toy and Hardware Specialties, Novelties, Ice and Roller Skates, &c. A large variety of Toy Banks are shown with and without combination locks, also Toy Scales, Sad Irons, Skates, Ice Breakers, Lemon Squeezers, &c.

CHARLES J. GODFREY, 11 Warren street, New York.: Guns, Flobert Rifles, Martin Safety Repeating Rifles, Revolvers, Bicicles, &c. Special bargain list No. 411 states that the object of this list is to reduce their stock, and that to this end profits have been sacrificed. This is strictly a dealers' catalogue, and all prices quoted are net.

KITSELMAN BROTHERS, Ridgeville, Ind., and Beatrice, Neb.: Kitselman Woven Wire Fence Machine. Illustrations are given of the machine in and out of operation, with descriptions of its workings. A series of pictures also graphically illustrate the ineffectual efforts of a farmer to build a desirable fence before using this Fence Machine.

FRASSE & Co., 92 Park row, New York: Fine Tools and Supplies. Their catalogue of 50 pages gives illustrations of an ex-

tensive variety of goods in this line, with descriptions and prices. They advise the trade that they are constantly adding newly invented and improved Tools and Machinery to their stock, and that they furnish any Tools that are in the market.

RECTOR & WILHELMY COMPANY, Omaha, Neb.: Price current of seasonable goods. Illustrations are given of Galvanized Iron Conductors and Eave Troughs, Sheet Steel Cresting and Ridge Board combined, Woven Wire Fencing, Lawn Mowers, Peerless Self-Wringing Mops, Lawn Sprinklers, Pruning Shears, Corn Planters, Carpet Sweepers, &c.

CHURCH & SLEIGHT, 109 Fulton street, New York: Capitol Tools, for which they are selling agents for this market. The line include, Eureka Tapping Machine, Capitol Taper Boring Machine, Milling Machine Vise, Slide Rest, Machinists' Clamp, Lathe Dog, Clamp Dog, "C" Clamp, Reamer Holder, and Capitol Vise Spreader.

FARWELL, OZMUN, KIRK & Co., St. Paul, Minn.: Guns, Ammunition and Sports men's Supplies. A 96-page catalogue, 9½ x 12 inches, illustrates and describes Guns, Rifles, Revolvers, Cartridges, Reloading Tools, Implement Sets, Shooting Coats, Gun Covers and Cases, Dog Collars, Tennis Goods, Boxing Gloves, Flasks, Pouches, Targets, Traps, &c. In presenting this their first Gun catalogue, they state that their aim will be to avoid the worthless class of goods with which the market has been flooded, and to handle only such articles as have merit, and which will give satisfaction to all. It is their intention to extend the line from time to time until it comprises Fishing Tackle, Bicycles, Tennis, Base Ball Goods and Sporting Goods of all kinds. Their catalogue is conveniently arranged, well printed on an excellent quality of paper, and will doubtless be appreciated by their customers.

JAMES H. FLAGG CUTLERY COMPANY, 143 Chambers street, New York: Pocket and Table Cutlery, Razors, Razor Strops, Scissors, Shears, Spoons, Revolvers, Rifles, Plated Ware, &c. Illustrations are given of these goods, which includes a large variety of the Flagg brand of Pocket Cutlery. It is stated that in their Flagg brand nothing but the finest of S. & C. Wardlow's Bar Steel is used, and that all the blades are hand forged. Customers selling their goods, and desiring to illustrate some styles of Cutlery shown in their catalogue, will be furnished with electrotypes at cost of making them.

VOM CLEFF & Co., 105 Duane street, New York: Importers and manufacturers of French and German Hardware and Cutlery. Their illustrated catalogue shows Jewelers' Anvils, Planishing Hammers, Tweezers, Spring Dividers and Calipers, Plyers, Hack Saws, Stocks and Dies, Sheep Shears, French Horse Clippers, Brass Goods, Till and Cupboard Locks, Cork Screws, Razors, Shears, &c.

DAME, STODDART & KENDALL, Boston.: Illustrated catalogue and price-list of Hub Razors. The line of Razors illustrated comprises about 40 patterns, their quality, style and finish being emphasized. The manufacturers state that the Razors are made from the best steel obtainable, ground by the finest Razor grinders in the world, and that the Razors are all made from the same superior quality of steel, the difference in prices being due to differences in the handles and in the grinding. They warrant every Razor to be of keen, even temper and to be perfectly ground.

J. R. TORREY & Co. and J. R Torrey Razor Company, Worcester, Mass.: Elliott W. Langley, agent, 85 Chambers and 67 Reade streets, New York. Illustrated price-lists are issued of Razor Strops and Dressing Cases and of Razors. It is now more than 30 years since J. R. Torrey commenced the manufacture of Razor Strops. The J. R. Torrey Razor Company were established in 1880, and it is stated that the Razors are forged from the finest steel obtainable, ground by skilled workmen, and put up in attractive cases of their own design.

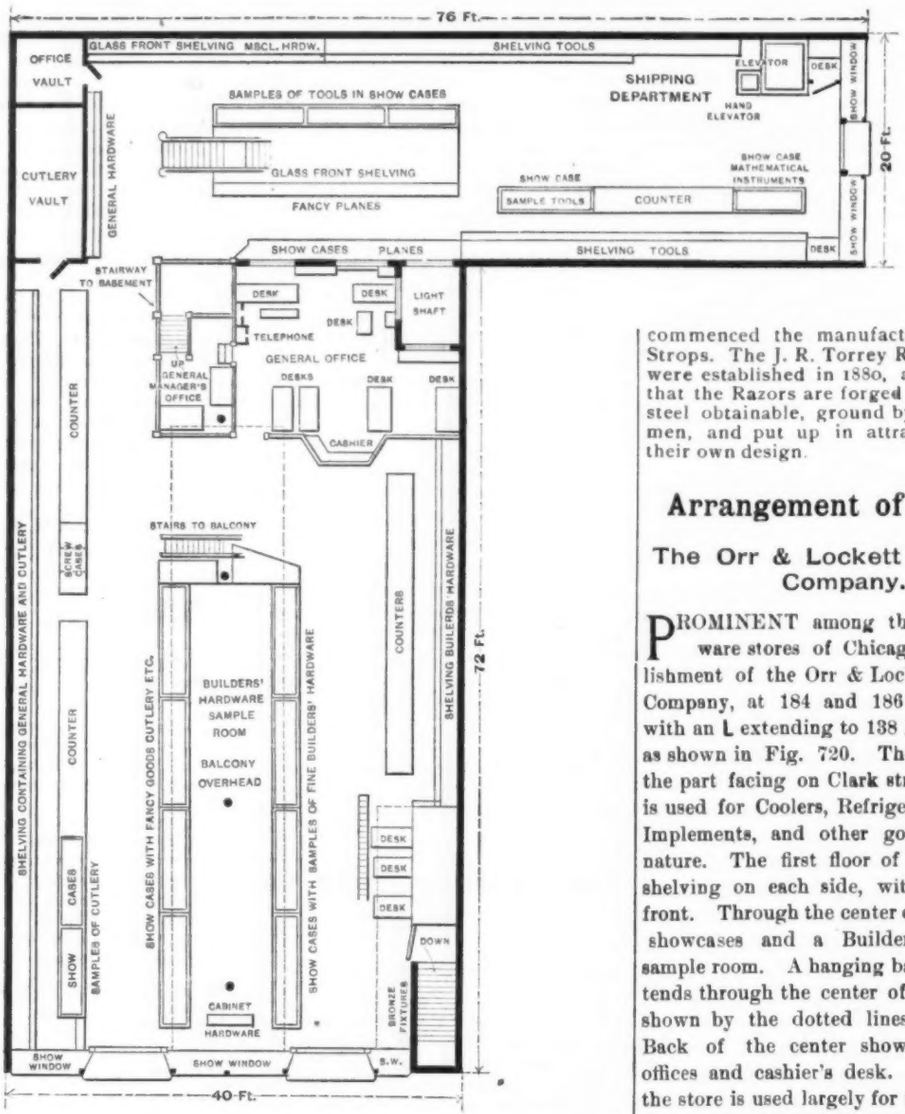


Fig. 720.—Plan of the First Floor.

Arrangement of Stores.

The Orr & Lockett Hardware Company.

PROMINENT among the retail Hardware stores of Chicago is the establishment of the Orr & Lockett Hardware Company, at 184 and 186 Clark street, with an L extending to 138 Monroe street, as shown in Fig. 720. The basement of the part facing on Clark street, Fig. 719, is used for Coolers, Refrigerators, Garden Implements, and other goods of a bulky nature. The first floor of the store has shelving on each side, with counters in front. Through the center of the store are showcases and a Builders' Hardware sample room. A hanging balcony also extends through the center of the room, as shown by the dotted lines in Fig. 720. Back of the center showcases are the offices and cashier's desk. The L part of the store is used largely for tools, and near the street entrance is the shipping department. At the back of this room are the Cutlery and office vaults. Above this part of the store is the department of butchers' supplies, as shown in Fig. 721. Within the buildings described, which are comparatively narrow quarters, an immense business is conducted, which is growing rapidly from year to year, taxing the ingenuity of the proprietors to provide the requisite facilities. They not only carry a line of general Hardware, Cutlery and Tools, but have become specially prominent in connection with Builders' Hardware, taking important contracts for furnishing large buildings in various cities of the Northwest as well as in Chicago. They have further paid careful attention to the requirements of mechanics generally, and

handle complete outfits for brickmasons, paperhangers, &c., as well as for carpenters. Their department of butchers' tools and Supplies forms almost a business of itself.

Figs. 722 and 723, which are general views of the main store, show the expedients to which they have been obliged to resort in order to accommodate their limited quarters to the requirements of their extensive business. The main floor of their store has a ceiling 15 feet high. In the center of the main store are two lines of showcases filled on one side with Cutlery in cases and on the other with samples of Bronze Hardware. Between the showcases is a space of 8 x 12 feet in which are displayed Builders' Hardware, samples of which are kept in drawers under the counters upon which the showcases rest. They have found it more convenient to display fine Hardware on boards measuring 11 x 8 inches of different kinds of highly polished hardwoods. Upon each board are fixed a few pieces of a related design and finish. When in use these boards are placed upon racks, as shown in Fig. 724. These are built of cherry and so constructed that the sides or leaves will drop to permit them to be set aside out of the way, occupying but little room when folded. The leaves or sides are hinged at the top and held in position by slotted brass slides such as are used on box lids. The racks are further mounted on casters. Several sizes are used. Some have a double rack on each leaf, made by fastening a strip across the center, so as to hold several small-sized boards with samples. To adequately display their line of fine Hardware, about 225 boards are required. Within this sample space are 72 drawers and in nearly all of them are kept four boards each. At one end of the sample room on wide shelves, they show one sample of each of the leading kinds of Locks, as they find this method suffices, for by showing a Lock mounted in this manner, it affords a customer an opportunity of judging of the kind of Lock, while on the hardwood boards the different varieties of Trimmings are shown.

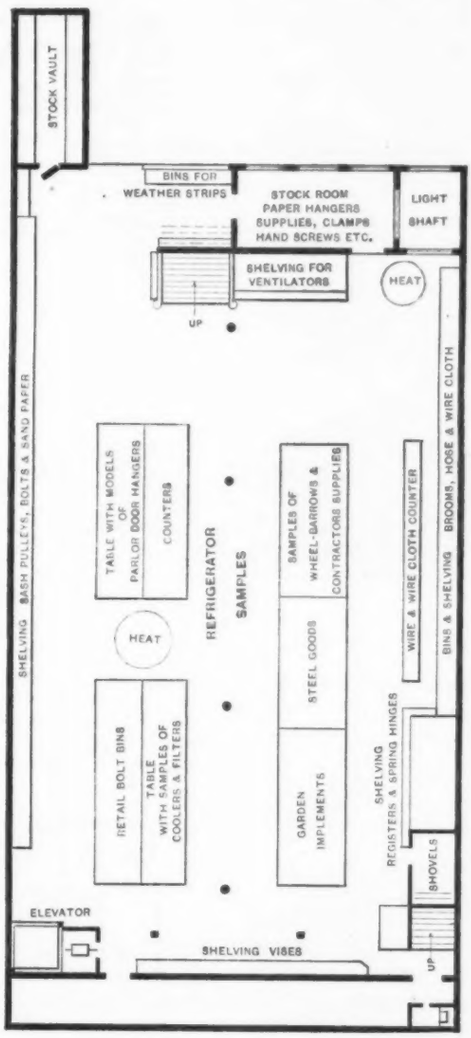


Fig. 719.—Basement Plan of Main Store.

To avoid the necessity of using the glass showcases in showing mounted samples, they have at the top of the 18 tiers of drawers a sliding shelf that can be pulled out and returned at will. This gives them a large amount of counter room.

On the different counters in the store, for general use, are displayed Night Latches, Rim and Mortise Locks, Padlocks, Cabinet Locks, Door Bolts, Cupboard Turns and Catches, Sash Locks, Sash Lifts and in general all small Trimmings on wooden pyramids, Fig. 725, measuring at the base 24 inches and tapering to 22 inches at the top and in hight 40 inches. They are fixed upon the counters so as to be easily revolved, affording a large amount of surface on which to arrange samples and giving buyers a good opportunity to see and examine the goods. These samples are screwed on, and in cases where it is desirable to show the reverse of anything, as in Latches, the side of the pyramid is pivoted vertically, thus permitting both sides of the board to be shown and giving double space where it is necessary. Numbers and prices of each article are put on cards placed beneath it. The shelving, which runs to the ceiling, is filled with wooden boxes 18 inches long, 5½ inches wide and 6½ inches deep, the faces of which are green, lettered in white, designating the number and kind of goods they contain. The boxes are filled with surplus stock as required. This method of carrying retail stock they refer to as quite convenient. Nails for retailing are still carried in bins under the counters, having made no improvement upon this old method. Suspended from the ceiling and extending almost the full length of the store, Figs. 722 and 723, is a balcony or platform, fitted up with shelving for surplus stock, and having passage ways on both sides. Iron plates rest on the joists above, and through them are bolted the rods which form the support of the balcony and are calculated to bear a weight much greater than they will ever be called upon to sustain. The bottom of the balcony is high enough from the floor to enable the space under it

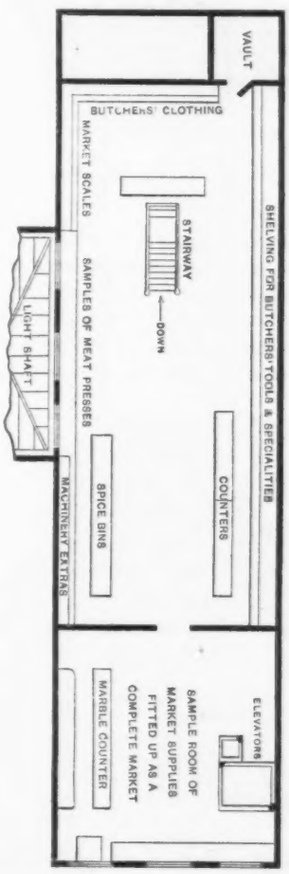


Fig. 721.—Butcher Supply Department.

to be used for the Builders' Hardware department, already described. Access is gained to the upper shelves by traveling stepladders. The visitor to this store will be impressed by the evident thorough system upon which it is conducted.

Fig. 722.—Left-hand Side of Main Store.

If a stranger appears not to know where to find the article wanted, he is accosted by a gentlemanly usher, who directs him to the proper part of the store. There is no confusion; clerks and customers are not rushing to and fro, but each clerk has

Fig. 723.—Right-hand Side of Main Store.

his own department to supervise. Cash carriers run by wire from each department to the cashier's desk. Everything is orderly, and customers are at the same time served expeditiously.

Cutlery in Sheffield.

OUR SHEFFIELD EXCHANGES frequently refer to the falling off in the American demand for Cutlery, and there is a good deal of complaint in regard to the dullness of trade. The following extract from a recent issue of a Sheffield paper is a side light on the Cutlery situation:

The firms that supply hafting material to the Cutlery manufacturers are complaining of depression more severe than anything they have known for many years. It seems to apply to all departments. The Ivory trade is about as quiet as it can well be, and much of the business transacted is so cut as to leave little or no profit. Business in Stag and other high-class Horns is pretty much at a stand. The last sales of Stag were in February, and it seems probable that there will be an interval of four months before the next sales—a much longer period than usual. There will be no inconvenience from this, so far as local Horn merchants are concerned, as they have stocks on hand sufficient to meet all requirements for some time to come. So keen is the competition for what little trade there is that a farthing per dozen is sufficient to decide an order. The Pearl cutters are doing quietly in best Scales, but for commoner qualities the demand is most sluggish. Immense quantities used to be sent to Germany, but the collapse of their trade with America has stopped that demand. There is no improvement in the Bone trade, and the outlook is regarded as discouraging. About two years ago a syndicate was formed to buy up foreign Hard Woods, such as are used in the Cutlery and Case trades. Having secured several hundreds of tons prices were run up about 25 per cent., but the syndicate found themselves unable to control the market, and they are left with their stocks on hand.

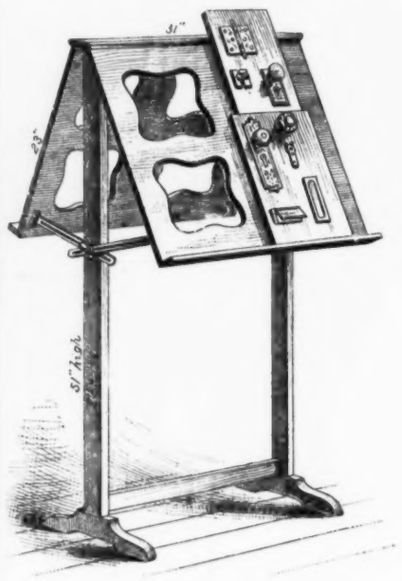


Fig. 724.—Easel Rack.

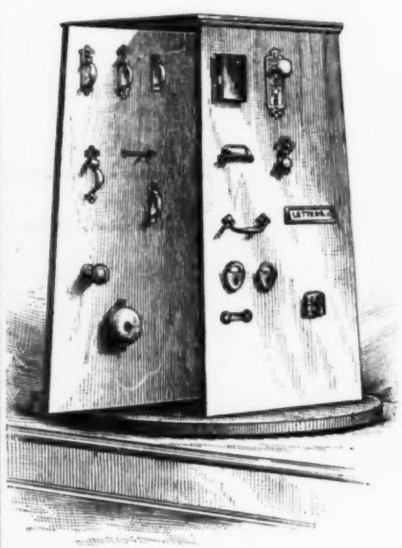


Fig. 725.—Pyramid Sample Boards.

Exports.

PER BARK NEW ZEALAND, MAY 18, 1892, FOR AUCKLAND, NEW ZEALAND.

By Manhattan Brass Company.—11 barrels Lamp Goods.
By Alfred Field & Co.—1 case Hardware, 1 case Whips, 1 case Whipstocks.

FOR LYTTLETON.

By Australasian-American Shipping Company.—232 packages Binders.

FOR DUNEDIN.

By Atlas Tack Corporation.—16 cases Nails.
By Rogers, Smith & Co.—16 packages Plated Ware.
By Manhattan Brass Company.—11 barrels Lamp Goods.
By Hartley & Graham—9 cases Cartridges, 3 cases Empty Cartridge Shells, 1 case Fire Arms.
By Australasian-American Shipping Company.—1 case Hoes, 284 packages Binders.

FOR DUNEDIN, LYTTLETON AND AUCKLAND.

By Arkell & Douglas.—6 cases Scales, 4 cases Forks, 2 cases Anti-Ratters, 2 cases Hoes, 1 case Lead Pencils, 5 cases Pumps, 7 cases Scales, 7 racks Churns, 1 case Traps, 1 case Brushes, 11 cases Nails, 1 bundle Cordage, 1 case Stencils, 3 cases Agate Ware, 6 cases Fire Arms, 26 cases Cartridges, 8 cases Choppers, 71 cases Fruit Jars, 5 cases Axles, 6 cases Nails, 1500 reels Barb Wire, 12 cases Wringers, 84 cases Mowers, 22 cases Handles, 62 cases Axes, 30 cases Horse Nails, 25 cases Tools, 68 packages Hardware.

PER SHIP CHARLES S. WHITNEY, MAY 18, 1892, FOR SYDNEY, N. S. W.

By S. Hoffnung & Co.—3 packages Axes, 4 cases Corn Mills, 1 case Wrenches, 6 cases Saws and Files, 1 case Pumps, 1 case Tacks, 1 case Hardware, 1 case Lamp Fittings, 5 packages Handles, 3 cases Hardware, 4 cases Lampware, 1 case Brushes, 3 cases Freezers, 3 casks Bells, 23 cases Axes.
By McLean Bros. & Rigg.—8 cases Wire Goods, 17 packages Hardware, 2 cases Rifles, 11 cases Cartridges, 6 cases Choppers, 1 case Oilers, 1 case Tacks, 2 cases Twist Drills, 2 cases Hammers, 12 cases Agate Ware, 9 cases Stocks and Dies, 1 case Tinware, 6 cases Wire Goods, 3 cases Handles, 8 cases Hardware, 3 cases Snaths, 17 cases Sadirons, 2 cases Hay Rakes, 1 case Freezers, 1 case Hair Clippers, 13 cases Axes, 3 cases Bolts, 7 cases Freezers, 2 cases Egg Beaters, 3 cases Saws, 1 case Saw Sets, 4 cases Mop Handles, 3 cases Corn Drills, 7 cases Braces, 2 cases Staples, 2 crates Money Drawers, 13 cases Axes, 9 cases Hardware, 1 case Auger Bits, 5 cases Files, 168 cases Tacks, 2 crates Oil Stone, 1 case Plows, 48 crates Refrigerators, 12 cases Scales, 1 case Graters, 25 cases Axes, 5 cases Bells, 13 cases Axes, 1 case Wrenches, 2 packages Pumps, 4 cases Broilers, 16 packages Fruit Jars, 2 cases Wringers, 2 cases Saws, 2 cases Nails, 6 cases Fruit Jars, 6 cases Hatchets, 1 case Hoes, 4 crates Refrigerators, 1 case Curry Combs.
By W. H Crossman & Bro.—2 cases Tills, 1 crate Jacks, 1 case Tire Benders, 1 case Air Guns, 1 barrel Hoes, 12 boxes Axes, 14 boxes Iron Bolts, 13 cases Hatchets, 5 crates Traps, 1 case Handles, 34 packages Hardware.
By Australasian-American Shipping Company.—26 cases Axles, 4 cases Hardware, &c., 8 packages Lampware, 7 cases Loading Tools, 4 cases Axles, 4 cases Mowers.
By Joseph F. McCoy Company.—1 case Hardware, 1 cask Tackle Blocks.
By Pairpoint Mfg. Company.—2 casks Plated Ware.
By Edward Miller & Co.—122 packages and 4 boxes Lamp Goods.
By Collins & Co.—180 dozen Axes.
By Bradley & Hubbard Mfg. Company.—11 packages Lampware.
By Strong & Trowbridge.—1316 dozen Handles, 67 cases Handles.
By Manhattan Brass Company.—1 box Lamp Goods.
By Reed & Barton.—3 casks and 11 packages Plated Ware.
By F. B. Wheeler Company.—83 cases Axes.
By W. K. Freeman.—15 cases Nuts and Bolts.
By Sargent & Co.—12 cases Hardware.
By Union Nut Company.—12 cases Iron Bolts.
By W. E. Peck.—10 cases Plated Ware.
By H. W. Peabody & Co.—1 case Axes, 8 cases Axles.
By R. H Dana & Co.—1 cask Blocks.
By Ilsley, Doubleday & Co.—25 cases Axe Handles, 5 cases Beaters.
By Hartley & Graham.—28 cases Cartridges, 5 cases Cartridges and Primers, 2 cases Fire Arms, 3 cases Tools.
By Henry Disston & Sons.—3 cases Hardware.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

In nearly all lines of Paints there has been a very good business throughout the week, in which both manufacturers and jobbers have shared, and distribution is undoubtedly quite as full as usual at this season of the year. Southern trade is an exception to this rule, being behind the June average in many localities, but the unenviable experience there is offset in a good measure by increase in the movement toward other distant points and a quite brisk trade in near-by and local markets. In values few changes have taken place. At second hands more or less cutting of combination and association card rates is still indulged in, but manufacturers identified with such organizations do not appear to be affected thereby. In other lines where no attempt to maintain prices is made the fluctuations are not of unusual character, most quotations being comparatively low and the condition of the market for most base materials such that concessions on the manufactured goods would be at the expense of profits.

White Lead.—Irregular prices for corroders brands are still made by jobbers and the liberality of the middlemen in this particular is governed in a great measure by the extent of their customers' purchase of other goods that may show good margins of profit. Single kegs have been put in at the 5-ton card price in numerous instances, and, occasionally, at the 12 ton rate, while relatively as low rates have been made on 25 lb pails. Corroders, however, make no concession to any class buyers and appear to view the "cutting" by jobbers with unconcern. In mixed Leads no changes of importance have occurred, although there is more or less irregularity on some descriptions. Business has been of very good proportions, but not above the average for this season of the year.

Red Lead, Litharge, &c.—There has been a very fair movement in Red Lead and the several grades of Litharge, but neither large consumers nor other buyers are taking a great deal of supply over and above what they may have immediate use for. Orange Mineral has also sold fairly, but in a routine sort of way only. The old line of prices prevails throughout.

Zincs. — Manufacturers' agents note nothing in the way of unusual orders for domestic Oxide, but the business passing makes a very good showing, all told, and deliveries continue on a scale that prevents any burdensome accumulation. Prices therefore remain very steady for all grades. The market for imported Zincs is without new feature, business being rather slow outside of ordinary jobbing distribution and at unchanged prices.

Colors, &c.—For the leading lines of dry Colors in form for painters' use there has been a good seasonable demand and the movement of Oil Colors is also of very good proportions. No change in prices of any of the leading staples are announced, and, drawing the line at inferior qualities that are usually irregular, the market appears steady. Influences bearing upon the market are not such as would point to radical changes in the immediate future. Bulk Colors for grinders' use are ruling very steady. Metallic Paints and various lines of ready-mixed Paints have been meeting with very good sale.

Miscellaneous.—No decided movement has occurred in the market for Block Chalk. Outside competition in Whiting continues keen, but local manufacturers make no change in their prices. Putty is in very similar position. Barytes has had slightly better sale at steady prices. Terra Alba China Clay and Talc are without change.

Oils and Turpentine.

The situation in the various branches of the market for Animal and Vegetable Oils is also precisely the same as it was a week ago. No new influences calculated to enhance or depress values have come to the surface and on the part of both buyers and sellers there is apparently the same conservative disposition that has predominated for some time past. Taken as a whole the home consumption is doubtless of as full volume as usual at this season of the year, but export operations are conducted with the utmost caution, chiefly for the reason that present cost here is high in comparison with selling prices in the foreign markets.

Linseed Oil.—Some few outside holders of Western brands have offered Oil here at a price slightly below the one now generally asked by crushers, but the amount of Oil involved was moderate and the offering had no perceptible influence upon the market. From agents direct the lowest quotation at present is 41¢, less 2 %. City crushers hold their prices firmly at 42¢, usual terms. Buyers in this locality are taking supplies only as actual needs may necessitate, but the distribution is of liberal amount all told and not visibly affected by existing prices.

Cotton Seed Oil.—Buyers of crude product operate cautiously, as though inclined to wait for cheaper lots from second hands, but cheaper lots fail to materialize, and buyers have been obliged to pay 29½¢ for prime quality and corresponding prices for low grades. One deal involving several thousand barrels off grade Summer Yellow is understood to have been put through, but operations otherwise include moderate-sized parcels only, the aggregate of which is only fair. Choice quality Yellow realized 33¢, prime about 32¢ and "off" grade went at 31¢ @ 31½¢ chiefly.

Menhaden Oil.—Latest reports from the fishing are to the effect that the catch latterly has been poor and that adverse weather has changed the prospects, momentarily at least. Pending later developments holders are firm at 31¢ for prime crude and offer reservedly. Pressed and Bleached Menhaden and Tanners' Oils are selling fairly in a jobbing way at steady prices.

Sperm and Whale Oils.—Of crude Sperm about 500 barrels have been sold, part for export, and there is just enough inquiry to keep the market in good form. In crude Whale there has been business to the extent of about 100 barrels. Prices for the crude Oils are without change and the manufactured products are selling fairly in a jobbing way at old rates.

Lard Oil.—No change whatever in this line. City pressers hold their prices firmly at 56¢ @ 57¢ for prime Oil, and outside brands go at within about 1¢ of those figures. The demand is steady and little or no accumulation of supply takes place here.

Olive Oil.—Common quality, in barrels, is rather weak, owing to quite large supply here and some pressure to sell. Spot goods have been sold at 57½¢ @ 58¢ in round lots and 59¢ @ 60¢ in ordinary jobbing quantities on the spot.

Spirits Turpentine.—Extremely low prices ruling of late have prompted somewhat freer purchases by large buyers, but stocks in receivers' hands have increased and the market has shown a weakish uncertain tone. Ordinary barrels sold at 29¢, and machine barrels at ½¢ above that price, but at the close the market showed slightly better tone. On latest dealings 29½¢ was paid for regular and 30¢ for machine barrels.

Chapin Hollow-Handled Cutlery.

The Chapin Cutlery Company of Toledo, Ohio, were organized under the Ohio law in July, 1889, for the manufacture of hollow-handled table cutlery. Their first goods were put upon the market in the spring of 1890, and since that time up to the fall of 1891 they sold only the steel blanks to the large Eastern silver platers. The blanks when plated bore, of course, the name of the plater. The Chapin Cutlery Company were naturally desirous that whatever reputation the goods made for themselves should accrue to them, and therefore determined to establish their own plating works, which have now been in operation since December, 1891. Their success since then in marketing their silver-plated goods has led them to take steps for the erection of a new and larger factory, which is in course of erection. This new shop is finely situated on the Lake Shore and Michigan Southern Railroad, and will be large enough for the production of 300 dozen per day, while the company have sufficient capital to meet the requirements of the increased business. The officers of the company are as follows: Geo. H. Ketcham, president; F. M. Ohl, treasurer, and Wm. H. Chapin, manager.

Fig. 1.—Solid Bar of Steel for Handle.

Now that the company's goods are being marketed under their own name, the opportunity has been created for publishing a description of the peculiar method pursued in making them. Referring to the accompanying cuts, the process of manufacture can be readily understood. It is as follows:

The handle is made by drilling out a piece of steel from one end nearly to the other, as shown in Figs. 1 and 2. In the latter cut a portion of the end has been broken away to show how the drilling has been done. A piece of blade steel is then driven into the open end of the handle sufficiently far to hold the pieces together, as indicated in Fig. 3. They are then heated at the point of union of the handle and the piece of blade steel to a welding heat, and perfectly joined together by a few blows of a rapidly running light trip hammer, provided with suitable dies, and we have the finished forging blank shown in Fig. 3, which blank, by subsequent operations may become a knife, fork, nut pick or other article on which a hollow handle may be desirable.

Fig. 2.—Bar Drilled Out for Handle.

Fig. 3.—Handle and Solid Bar for Blade Forged Together.

The blank leaving the welding hammer retains sufficient heat for drop forging and is passed to the drop through an inclined trough, where the operation of that machine gives to the blank its first resemblance of what it subsequently is to be; in this instance a knife blank is shown, Fig. 4, and this and all following operations are precisely the same as in the manufacture of the common solid steel handle—viz., the stub of the blade steel is rolled out flat (see outside dotted lines in Fig. 4) to make the length of blade desired, it is then passed under suitable dies in a powerful trip hammer by which the blade is suitably tapered, and the knife then goes through the dies of the punch press and is trimmed to proper shape (see inside dotted lines on Fig. 4), and it is then ready for straightening, tempering, grinding and finishing ready for the silver plater.

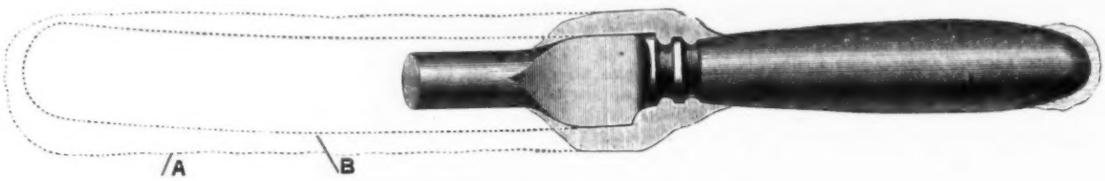


Fig. 4.—Knife Blank in Process of Drop Forging.

Fig. 5 represents one of the completed handles with the side planed off to show the interior. Fig. 6 shows two styles of knives manufactured by the company.

Fig. 5.—Handle with Side Planed off to Show the Interior.

The manufacture of hollow-handle table cutlery as heretofore produced was expensive and unsatisfactory if a medium-priced article is desired; and if a good article is desired the price has of necessity been so high as to make it prohibitory to the average customer. By the process of this company a knife of beautiful outline with a large handle of great lightness and absolute indestructibility is produced, at a price which makes it only a little more expensive than the common solid steel handle. Furthermore, this process eliminates the possibility of leaky or imperfectly brazed handles, which is one of the most common faults of the hollow handle as ordinarily made—namely, by folding a piece of sheet steel or other suitable metal to the shape desired and then brazing, welding or soldering the long seam down the handle and around the butt of it. So while at first sight it may appear to be a very expensive way to make a hollow handle, to drill it out, yet to such perfection has the machinery built for this especial work been brought that a boy can attend to three machines whose product will exceed 100 dozen a day. The company expect to occupy their new premises in July, and a long era of prosperity seems opening before them. W. C. Brown, 45 La Salle street, Chicago, is exclusive sales agent, handling the entire product of the factory.

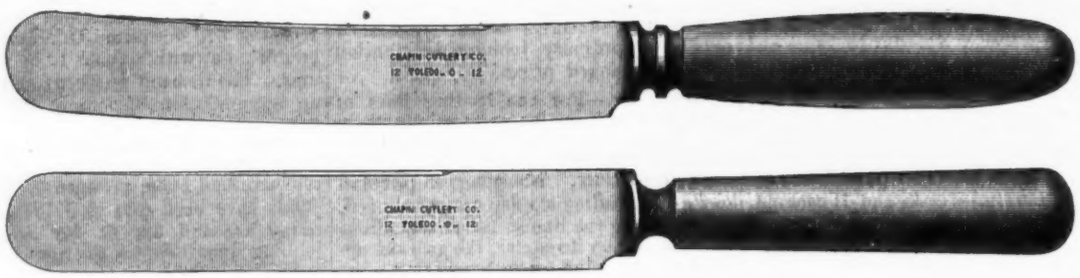
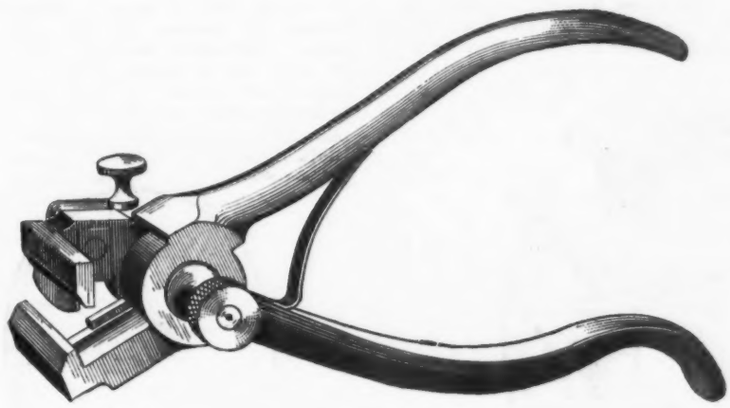


Fig. 6.—Patterns of Completed Knives.

The Carnegie Music Hall, in this city, will be enlarged and rearranged at an additional outlay of $500,000.

Duplex Saw Set.

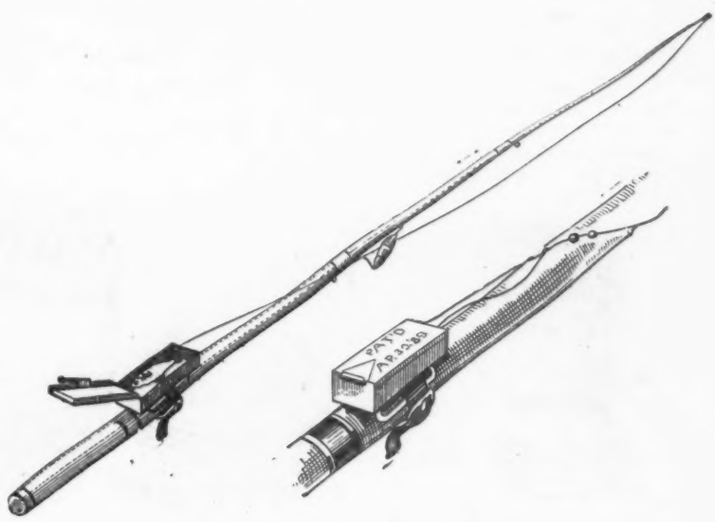
Bonney Vise and Tool Works, Armstead O. Bills, proprietor, Philadelphia, Pa., are introducing this article, as illustrated herewith. It is designed to set two teeth at once, one up and the next one down. The set is provided with stop flanges at the ends of the jaws, which grip the blade of the saw firmly, while the anvil sets one tooth against the other, thus keeping the saw straight, saving the time and trouble of going over the saw twice, as in the usual manner. It has an adjustable joint screw by which the jaws are allowed to open and close, from the finest to the coarsest pitch tooth. The manufacturers claim that this set sets the saw more regularly and in half the time required by other sets.



Duplex Saw Set.

Mumford's Safety Hook and Bait Box.

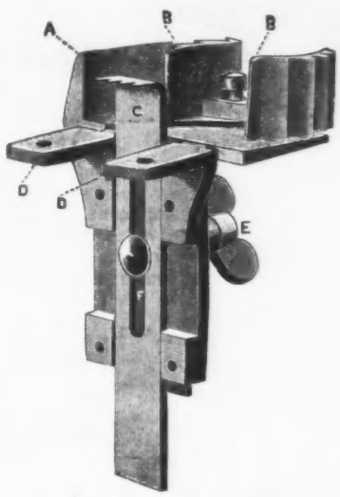
The Enterprise Mfg. Company, Akron, Ohio, are offering a hook and bait box, as illustrated herewith. It is a neat tin box, 1½ x 2½ inches in size, which is fastened on to the rod by means of a spring clasp. The box is lacquered inside and finished in colors outside, having two openings at one end, to allow the cover to be closed when the line is attached to the hook or bait. When moving about in a boat or on shore the hook and bait can be quickly put in the box, preserving the bait, avoiding tangling the lines, and the constant annoyance of having the hook catching on everything within reach. A double box for the same purpose is also made, having the covers hinged at the center of the box.



Mumford's Safety Hook and Bait Box.

Buck Bench Hook and Clamp.

West Patent Mfg. Company, Elyria, Ohio, are introducing this article as illustrated herewith. It is stated that boards of any thickness from ¼ to 2 inches may be securely held as in a vise between the stationary piece A and the revolving clamps B B. The hook C can be raised or lowered below the bench by the aid of the screw E, likewise the entire parts A and B B may be raised or lowered in the same manner. The whole device is securely fastened to the bench by screws at the top, D D, and also at the sides. The retail price is referred to as reasonable, and the trade discount as liberal.



Buck Bench Hook and Clamp.

The New Starr Spring Cash Carrier.

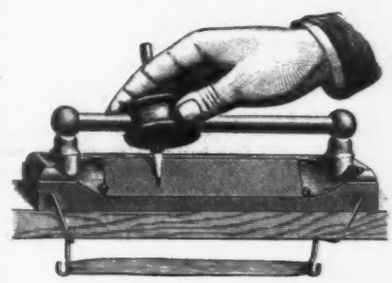
Starr Cash and Package Car Company, New London, Conn., are offering the cash carrier, as illustrated herewith. The car is propelled along the wire by means of a steel-bow spring; and by the use of the adjustable tripper, it is stated that the force and distance of the throw can be regulated to a nicety.

The manufacturers claim that this machine will not only throw the car along the level wire, but that it will throw it up a grade, which is convenient for those desiring to have the carrier elevated. It is also claimed that in this machine all superfluous attachments have been omitted; that it is useful and practical, and that it has been made ornamental and attractive in appearance. To the spring propeller they have adapted a basket for carrying parcels, which they claim works fully as well as the cash car.

The New Starr Spring Cash Carrier.

The Perfect Pencil Pointer.

Goodell Company, Antrim, N. H., have put on the market a pencil sharpener, as illustrated in the accompanying cut. As shown in the cut, the pointer is attached to the edge of a table, and the carriage through which the pencil is thrust is moved backward and forward on the rod. The pencil revolves as it is moved along the surface of a file made especially for the purpose. It is stated that the file has a deep cut, is carefully tempered and that it will last for years. By the use of the clamps the device can be instantly attached to a desk or table and as quickly removed; or can be used when held in the hand. It is referred to as being tasty in design, nicely finished, and as an ornament to any office. The manufacturers claim that the material and workmanship are the best, that the pointer does better work than can possibly be done in any other way, that it sharpens without wasting, that it saves time and prevents soiling the hands.



The Perfect Pencil Pointer.

Little Giant Meat Cutter.

The Peck, Stow & Wilcox Company, Southington, Conn., and 27 Chambers street, New York, in addition to the New Triumph Meat Cutter noticed in another column, have improved their Little Giant, brought out two years ago, as shown in Fig. 1. The patterns have been changed this season so as to permit the application of a meat stuffer attachment, which can be quickly adjusted to the machine, as shown in Fig. 2. The shape of the knife has been altered somewhat, and is referred to as stronger and less liable to break. The regular series will be known as Nos. 305, 310, 312, 320 and 322, and will be prepared for the attachments, which are not furnished with them, but which can be ordered and put on at any time. The meat cutters when furnished with attachments will be designated as Nos. 405, 410, 412, 420 and 422. Another feature of the Little Giant is that two perforated plates, with holes of different diameters, are packed with each machine. All the cutters made this season will be tinned instead of galvanized, which is referred to as adding materially to their appearance. The company claim that the smallest cutter, No. 305, will easily cut 3 pounds of meat a minute.

Fig. 1.—Little Giant Meat Cutter.

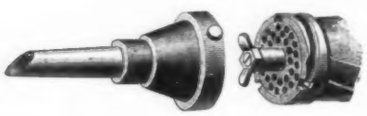
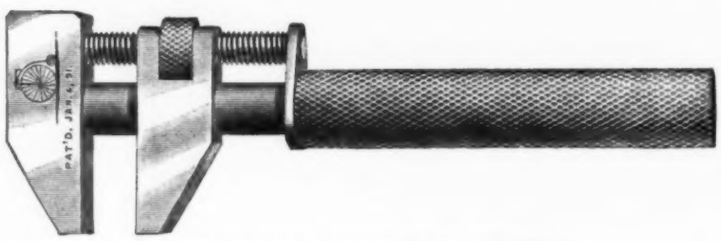


Fig. 2.—Stuffer Attachment.

The "Lrich" Superior Bicycle Wrench.

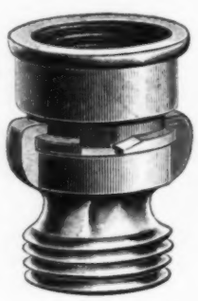
The Ellrich Hardware Mfg. Company, Plantsville, Conn., for whom Alford & Berkele Company, 77 Chambers street, New York, are agents, are offering a bicycle wrench, as illustrated herewith. The handle and bar are one solid piece of steel. The handle is 3 inches long, $\frac{5}{8}$ inch in diameter, knurled so as to secure a good grip, and a $\frac{3}{8}$ inch hole drilled in about two-thirds the length to lighten it. The bar on which the jaw moves is $\frac{5}{8}$ inch. The jaws open 1 inch and are $\frac{9}{16}$ inch square at the bar. The screw is $\frac{1}{2}$ inch in diameter, and affords a substantial reenforcement to the bar, thus securing absolute rigidity to the jaws. The entire length over all is $5\frac{1}{2}$ inches, weight 7 ounces. The jaws are highly polished and the whole wrench nickel plated. The adjusting nut is $\frac{1}{2}$ inch in diameter by $\frac{1}{4}$ inch thickness, knurled on the edge, so that it is readily operated by the forefinger or thumb as it is held by the handle in the hand. The statement is made that the wrench is not intended to be a cheap affair, but is superior in every detail. Every part is steel, and it is claimed that the jaws are carefully hardened, so that they will not crumble or turn.



The "Lrich" Superior Bicycle Wrench.

The Fricker Hydrant Coupler.

Cleveland Novelty Company, 78 Merchants' avenue, Cleveland, Ohio, are introducing a coupler, as illustrated herewith. It is designed for attaching hose to a hydrant, a quarter turn to the right locking it fast, while another quarter turn in the same direction releases it. It is claimed to be simple, durable and impossible to get out of order, and that it does away with the vexation caused by old-style couplings.



The Fricker Hydrant Coupler.

Hubbard's Steel Wheel.

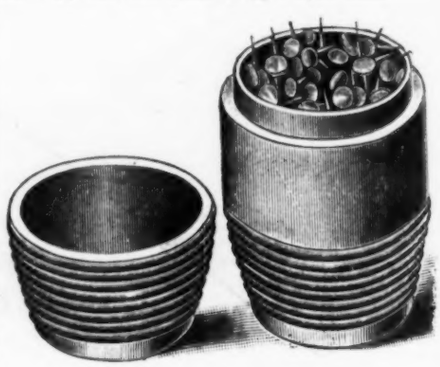
Sweatt Mfg. Company, Minneapolis, Minn., are putting on the market the wheel represented herewith. This wheel is described as constructed without the use of bolts, screws, rivets or nuts. It is claimed that it weighs no more and will sustain many times the weight of the ordinary wood wheel of the same diameter.

Hubbard's Steel Wheel.

The wheel is constructed upon what is referred to as the suspension principle, the weight being distributed upon all parts equally. It is bound together inward rather than braced outward. The bearings are made up of one journal $6\frac{1}{2}$ inches in length, composed of the hub and the axle bolt. The spokes are continuous, passing through the loom in the rim. The lightness, strength and durability of this wheel are points concerning it to which the manufacturers refer. All the wheels are painted. The 16 inch wheels are made with 16 spokes, tread $1\frac{1}{2}$ inches. The 18 and 20 inch wheels are made with 20 spokes, tread $1\frac{3}{4}$ inches.

Wood Keg Tacks.

Grand Crossing Tack Company, Grand Crossing, Ill., are putting up carpet tacks in wooden kegs, as represented in the accompanying illustration. A quarter of a pound of carpet tacks is thus put on the market in an attractive form and at a price



Wood Keg Carpet Tacks.

which permits its being sold for a nickel. The company refer to the favor with which the goods as thus offered are meeting.

The Triumph Meat Cutter.

Peck, Stow & Wilcox Company, Southington, Conn., and 27 Chambers street, New York, are putting a meat cutter on the market called the Triumph, as illustrated in Fig. 1, the parts being shown in Fig. 2. They claim as an important feature its extreme simplicity, there being but three essential parts—viz., the shell, 1 and 2, and feed screw, 3, in Fig. 2. They also call attention to the fact that the cutter is constructed upon an entirely new principle from any now in use. The teeth upon the feed screw work against corresponding teeth in the shells, making them self-sharpening. When cleaning it is only necessary to loosen the side screw in the frame, slip the shell out and separate the parts. It is claimed that the smallest size will easily cut 2½ pounds of meat per minute, and attention is called to the thoroughness with which the work is performed, the discharge being in pieces of granular form and not stringy. It is also pointed out that it will cut equally well vegetables, pulverize crackers and accomplish a variety of household purposes. Although but recently offered to the trade, the company advise us that orders have far exceeded their ability to execute. The cutters will be tinned instead of galvanized, and for this season will be supplied in family size only, No. 505, although later a full line will be placed on the market.

Fig. 1.—The Triumph Meat Cutter.

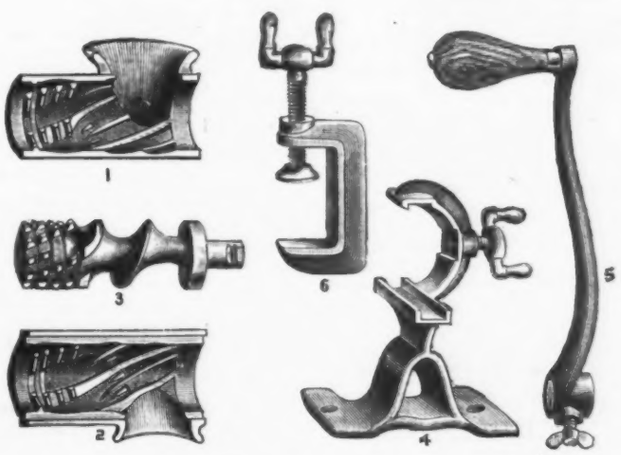


Fig. 2.—Parts of Triumph Meat Cutter.

In the United States Circuit Court at Leavenworth, Kan., on the 7th inst., in the somewhat noted case of the United States *vs.* the Trans-Missouri Freight Association, brought by direction of the Attorney-General against the railroad companies to dissolve the association, it being alleged that it was in violation of the Anti-Trust law, District Attorney Ady refused to make an argument and Judge Riner dismissed the case, thus deciding that the defense set up by the railroad companies fully sustained the legality of their acts.

The Hunt levee near Quincy, Ill., has given way under the enormous pressure of the Mississippi flood, and what was a fertile district 20 miles long by 4 wide is now a sea of water from 6 to 15 inches deep. The district extends from Warsaw south, where it connects with the Indian Grave levee, 18 miles north of Quincy, and most of it was under cultivation.

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CURRENT HARDWARE PRICES.

JUNE 8, 1892.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers, at the figures named.

Adjusters, Blind.
Domestic.....₩ doz $3.00, 33⅓%
Excelsior.....₩ doz $10.00.....50&10&2%
North's .....list net @10%
Zimmerman's—See Fasteners Blind.

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils.—
Eagle Anvils, ₩ ℔ 10¢.....15@15&5%
Peter Wright's.....11@11½¢
Armitage's Mouse Hole.....10½@11¢
Am. Wrought, Horseshoe brand.11@11½¢
Trenton.....10@10½¢
Wilkinson's.....10½@11¢
Moore & Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—
Millers Falls Co., $18.00.....20%
Chenev Anvil and Vise.....25%
Allen Anvil and Vise, $3.00.....40&10%
Star.....45&5%

Apple Parers—See Parers, Apple, &c.

Augers and Bits—
Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co.
French, Swift & Co. (F. H. Beecher, F. S. & W. Co.
Rockford Bit Company.
} 70&10@70&10&5%
Cook's, Douglass Mfg. Co.....55%
Cook's, N. H. Copper Co.50&10@50&10&5%
Ives' Circular Lip.....60%
Patent Solid Head.....30%
C. E. Jenning & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ₩ set, 32⅛ quarters, No. 5, $5; No. 30, $5.50.20%
Lewis' Patent Single Twist.....45%
Russell Jennings' Augers and Bits.25&10%
Imitation Jennings' Bits.....60@60&10%
Pugh's Black.....20%
Pugh's Jenning's Pattern.....4?%
Car Bits.....60@60&10%
Car Bits, P. S. & W. Co.....60&10%
Snell's Car Bits.....60%
L. Hommedieu Car Bits.....15&10%
Forstner Pat. Auger Bits.....20%
Cincinnati Bell-Hangers' Bits....30&10%

Bit Stock Drills—
Morse Twist Drills .....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30@30&5%
Cincinnati, for wood.....30&10%
Cincinnati, for metal.....45&10%

Expansive Bits—
Clarks' small, $18; large, $26..35@35&10%
Ives' No. 4, ₩ doz $60.....40%
Swan's 40%
Steer's, No. 1, $35; No. 2, $25.....35%
Stearns' No. 2, $48.....20%

Gimlet Bits—
Common .....₩ gross $2.75@$3.25
Diamond .....₩ doz $1.25.....4 &10%
See.....25@25&5%
Double Cut, Shepardson's.....45@45&10%
Double Cut, Ct. Valley Mfg. Co ...30&10%
Double Cut, Hartwell's, ₩ gro.....$5.25
Double Cut, Douglass' .....40&10%
Double Cut, Ives'.....60@60&10%

Hollow Augers—
Ives
French, Swift & Co.
Douglass'
} 33⅓&10%
Bonney's Adjustable, ₩ doz $48....40&10%
Stearns'.....20&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....20%
Wood's .....25@25&10%
Cincinnati Adjustable.....25&10%
Cincinnati Standard.....35&10%

Ship Augers and Bits—
L'Hommedieu's.....15&10@15&10&5%
Watrous'.....15&10@15&10&10%
Snell's .....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits, 15&10@15&10@5%

Awl Hafts—See Hafts, Awl.

Awls—
Awls, Sewing, Common ..₩ gr. 85¢@90¢
Awls, Should. Peg.....₩ gr. $1.50@$1.55
Awls, Pat. Peg.....₩ gr. 35¢@38¢
Awls, Shouldered Brad..₩ gr. $1.30@1 40
Awls, Handled Brad..₩ gr. $2.50@$3.00
Awls, Handled Scratch..₩ gr. $4.00@$4.50
Awls, Socket Scratch..₩ doz. $1.10@$1.20

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

	Plain.	Beveled.
First quality, best brands	$7.00 @	$7.50
First qual., other brands	6.62½ @ 6.75	
Second quality	6.00	6.50

Axle Grease—See Grease, Axle.

Axles—
No. 1...3¼@3½¢, No. 2, 5¢@6¾
Nos. 7 to 14.....60&10%
Nos. 15 to 18.....47½%
Nos. 19 to 22.....70%
} 3% cash
Concord Axles, loose collar.....2½@3¢
Concord Axles, solid collar.....5½@7¢
National Tubular Self-Oiling.....33⅓%@33⅓&5%

Bag Holders.—See Holders, Bag.

Balances—
Spring Balances.....40%

	No. 2000	20	30
Chatillon, ₩ doz...	$0.80	0.95	1.75 net

Chatillon Straight Balances.....40%
Chatillon Circular Balances.....60&10%

Barb Wire.—See Wire, Barb.

Bars.
Crow—
Cast Steel.....₩ ℔ 3½¢
Iron, Steel Points.....₩ ℔ 3¢

Basins, Wash—
Standard Fiberware, No. 1, 10½-inch, $2; 12-inch, $2.35; 13½-inch, $2.75; 15-inch, $3.25.

Beams, Scale—
Scale Beams, List Jan. 12, '83...50&10@50&10&5%
Chatillon's No. 1.....40%
Chatillon's No. 2.....50%
Custer's.....33⅓%

Beaters—
Egg—
Dover.....₩ doz $1.50
Duplex (Standard Co.).....₩ doz $1.25
Rival (Standard Co.).....₩ doz $1.00
Duplex Extra Heavy (Standard Co.)....₩ doz $3.50
Bryant's.....₩ gro $14.00
Double (H. & R. Mfg. Co.), ₩ gro. No. 0, $12.00; No. 1, $15.00; No. 2.....$36.00
Easy (H. & R. Mfg. Co.).....₩ gro $12.00
Triple (H. & R. Mfg. Co.).....₩ gro $16.50
Spiral.....₩ gro $4.25 @ 4.50
Improved Acme (H. & R. Mfg. Co.)....₩ gro $9.00
Paine, Diehl & Co.'s.....₩ gro $24.00
Silver & Co .....₩ doz $5.50
Culinary—
Keystone, P.D.&C., Each, No. 1, $1; No. 2, $2.....20 %

Bells—
Cow—
Common Wrought.....60&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Kentucky Durham .....70&10%
Dodge, Genuine Kentucky....70@70&10%
Texas Star.....50&10&50&10&5%
Door—
Gong, Abbe's .....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10&50%
Crank, Taylor's.....25&10%
Crank Brooks'.....50&10&2%
Crank Cone's.....10%
Crank, Connel's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned .....25&10%
Lever, R. E. M. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%
Electric,
Wollensak's.....20%
Bigelow & Dowse.....20%
Taylor's 20%
Hand—
Light Brass.....70&10%
Extra Heavy 70%
White 70%
Silver Chime.....33⅓&10%
Globe Cone's Patent) .....25&10@35%
Miscellaneous—
Call.....40@40&5%
Farm Bells.....₩ ℔ 3¢@3½¢
Steel Alloy Church and School Bells..40%

Bellows—
Blacksmiths'.....60&10@60&10&5%
Molders'.....40&10@50%
Hand Bellows.....40&10@50%

Belting, Rubber—
Common Standard.....70@10@75&5%
Standard.....70@5@70&10%
Extra .....60&10@60&10&5%
N.Y.B.&P.Co., Carbon.....60%
N.Y.B.&P.Co., Diamond.....50%
N.Y.B.&P.Co., Para.....40%

Bench Stops—See Stops, Bench.

Benders and Upsetters, Tire.
Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%

Bits—
Auger, Gimlet, Bit Stock Drills, &c., see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—
Cleveland Block Co., Mal. Iron50@50&10%
Moore's Novelty, Mal. Iron.....50%
Sure Grip Steel Tackle Blocks.....25%

Boards, Stove.
Wood Lined Crystal.....50%
Oxidized.....45%
Embossed.....50%
Paper Lined Zinc.....55%
Crystal.....55%
Embossed.....55%
New Tacoma.....55%

Bolts—
Carriage, Machine, &c.—
Com. list June 10, '84.....75&10&5&2%
Genuine Eagle, Norway, list Oct., '84... 80@80&10%
Phila. pattern, list Oct. 7,'84..75@75&10%
R.B.&W., old list 70%
Machine, list Jan. 1, 1890.....80@80&5%
Bolt Ends, list Jan. 1, 1890.....75&10@75&10&5%
Door and Shutter—
Cast Iron Barrel, Square, &c.....70&10%
Cast Iron Shutter Bolts.....70&10%
Cast Iron Chain (Sargent's list)...65&10%
Ives' Patent Door Bolts60&10@60&10&5%
Wrought Barrel.....70@70&10%
Wrought Square.....70@70&10%
Wr't Shutter, all Iron, Stanley's ..60&10%
Wr't Shutter, Brass Knob. ..40&10%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list....55&10%
Wr't Sunk Flush, Stanley's list....50&10%
Wr't B.K.Flush. Com'r .....55&10%
Stove and Plow—
Stove.....60%
Plow.....60&5%
R. B. & W., Plow.....55%
Tire—
Common, list Feb. 28, '83.....65%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83.....65%
Keystone, Philadel., list Oct. '84....80%
Norway, Phila., list Oct. '84.....75%
American Screw Company:
Norway, Phil., list Oct. 16, '84.....75%
Eagle, Phil., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....80%
Bay State, list Feb. 28, '83.....65%
R.B.&W., Philadel., list Oct. 16, '84.....80%

Borers, Tap.
Common and Ring.....20&10%
Ive's Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....50&10&30%
Clark's.....33⅓&35%

Borax.....₩ ℔ 9½@10½¢

Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon.
Per ℔.....2¾¢

Braces.—
American Bit Brace Co.:
Nos. 10, 12, 20.....60&10%
Nos. 11, 21, 24, 27.....70&10%
Nos. 22, 23, 25.....60&10&5%
Nos. 13, 26, 36, 37.....70&10&5%
Ball Braces, net .....$1.12 to $1.35¢
Amidon's
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled....65&10@70%
Ratchet.....75&10@80%
Eclipse Rachet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10; 10 in.....$2.25
Buffalo Ball.....$1.10@$1.1
Barber's,
Nos. 10 to 16.....50@50&10%
Nos. 30 to 33.....50@50&10%
Nos. 40 to 63.....50&10@50&10&5%
Saxton's,
Barker's Imp. Polished.....75&10@80%
Barker's Imp. Nickeled....65&10@70%
Ratchet, Polished.....50&10@60%
Ratchet, Nickeled.....40&10@50%
Buffalo Ball.....net, $1.10@$1.15
Bartholomew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Common Ball, American.....$1.00@$1.10
Fray's Genuine Spofford's..50&5@50&10%
Fray's No. 70 to 120, 81 to 123, 207 to 414.....50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barbers.....60&5%
Spofford.....60&5@60&10%
Osgood's Ratchet.....40&10@50%
P. S. & W. Co., Peck's Patent.....60%

Brackets—
Shelf, plain.
Regular list.....65@70%
Sargent's list.....66⅔@66⅔&10%
Shelf, fancy.
Sargent's list.....66⅔@66⅔&10%
Other makes at a wide range of prices.

Bright Wire Goods—See Wire.

Broilers—
Henis' Self-Basting. | Inch..... 9 10 9x11
Per doz...$4.50 5.50 6.50
New Haven.....50%
Wire Goods Co .....65&10%
Morgan Odorless.....₩ doz $12, 33⅓%

Buckets, Well.
Galvanized—
Hill's.....₩ doz, 12 qt, $4.25; 14 qt, $5.25
Iron Clad.....₩ doz. 14 qt, $4.25@$4.50
Helwig's Flat Iron Band.....$3.75
Helwig's Wired Top.....₩ doz $4.00

Bull Rings—See Rings, Bull.

Butchers' Cleavers—See Cleavers Butchers'.

Butts—
Brass—
Wrought Brass.....80@80&10%
Cast Brass, Tiebout's'.....50%
Cast Brass, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%
Cast Iron—
Fast Joint, Narrow.....50&10&5&60%
Fast Joint, Broad.....50&10@60%
Loose Joint.
Loose Joint, Japanned.
Loose Joint, Jap. with Acorns.
Parliament Butts.
Mayer's Hinges.
Loose Pin, Acorns.
Loose Pin, Acorns, Japanned.
Loose Pin, Acorns, Japanned, Plated Tips.
} .75@75 & 5
Wrought Steel—
Fast Joint, Narrow.
Fast Joint, Lt. Narrow.
Fast Joint, Broad.
Loose Joint, Broad.
Table Butts, Back Flaps, &c ....
Inside Blind, Regular.
Inside Blind, Light.
Loose Pin.
} .70&10 @75%
Bronzed Wrought Butts.....80%

Calipers—See Compasses.

Calks, Toe—
Gautier, One Prong, Blunt.....5½@6¢
Burke's, One Prong, Blunt.....5½@6¢
Burke's, Two Prong, Blunt.....7½@8¢
Burke's, One Prong, Sharp.....6½@7¢

Can Openers—See Openers Can.

Caps—
Percussion, ₩ 1000—
Hicks & Goldmark's and Union Metallic Cartridge Co.
F. L. Waterproof, 1-10's.....35@37¢
E. B. Trimmed Edge, 1-10's.....47@50¢
E. B. Grnd. Edge, Cent. Fire, 1-10's.....47@50¢
Musket Waterproof, 1-10's.....50@55¢
G. D.....27@30¢
A. B. Genuine Imported.....45¢
Eley's E. H.....56¢ @ 58¢
Eley's D Waterproof, Central Fire...$1.60
Primers—
Berdan Primers, $1.00.....2%
U. L. Caps (for Sturtevant Shells) $1.00, 2%
All other Primers, $1.20.....2%

Cards—List January 28, 1891.
Watson's Cotton, Wool, Horse and File.....2%

Carpet Stretchers—See Stretchers Carpet.

Carpet Sweepers—See Sweepers Carpet.

Cartridges—
Rim Fire Cartridges.....50&5&2 %
Rim Fire Military.....15&2 %
Cent. Fire, Pistol and Rifle.....25&5&2 %
Cent. Fire, Military and Sporting 15&5&2 %
Blank Cartridges, except 22 and 32 cal., additional 10 % on above discounts.
Blank Cartridges, 22 cal., $1.75.....2 %
Blank Cartridges, 32 cal., $3.50.....2 %
Primed Shells and Bullets.....15&5&2 %
U. S. Cape, Round Ball, $1.75.....2%
U. S. Cape, Con. Ball, Swgd., $2.00.....2%

Casters—
Bed.....
Plate.....
Shallow Socket.....
} Brass....55@55&10%
} Others...60@60&10%
Deep Socket.....40&10%
Yale Casters, low list.....45
Yale, Gem.....7%
Martin's Patent (Phœnix).....45&10@60%
Payson's Anti-friction.....70%
Payson's Truck.....60%
Giant Truck Casters.....30%
Stationary Truck Casters.....50&10%
Socket Truck Casters.....50%

Cattle Leaders—See Leaders, Cattle.

Cement.
Victor Elastic.....5 ℔ pails ₩ ℔ 8¢

Chain—
Trace, Wagon and Fancy Chains, List revised April 21, 1890.....60@ 60&10%
American Coil, in cask lots,

3-16	¼	5-16	⅜	7-16	½	⅝	¾
$7.60	5.45	4.45	3.80	3.65	3.50	3.40	3.35

Less than cask lots, add ¼¢@½¢ ₩ ℔.
German Coil, list Oct. 6, 1890..60@60&5%
German Halter Chain, list Oct. 6, 1890 60@60&5%
Covert Halter.....60&5%
Covert Traces.....55@5%
Covert Heel Chain .....60&5%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....₩ ℔ 5½@6¢
Jack Chain, Iron.....75&10@80%
Jack Chain, Brass.....75@75&10%

Chalk—
White, case lots, ₩ gr 50¢; small lots 55 @56¢
Red, case lots...₩ gr 67¢; small lots 77 @78¢
Blue, case lots...₩ gr 75¢; small lots 85¢
See also Crayons.

Chalk Lines—See Lines.

Chisels—
Socket Framing and Firmer.
P. S. & W.
New Haven.
Witherby.
Mix.
Ohio Tool Co.
} ..75 @ 75&10 %
Douglass.....75@75&5%
Buck Bros.....30%
Merrill.....60&10@60&10&5%
L. & I. J. White.....30@30&5%
Tanged and Miscellaneous.
Tanged Firmers. .....40&10@50%
Butchers'.....$4.75@$5.00
Spear & Jackson's.....$5 to $
Buck Bros.....30%
Cold Chisels, ₩ ℔ .....15@10%

Chucks—
Beach Pat.....each, $8.00.....20%
Morse's Adjustable, each, $7.00, 20@30&5%
Danbury.....each, $6.00, 30@30&5%
Syracuse, Bals Pat.....25%
Graham Patent.....33⅓%
Skinner's Patent Chucks.
Combination Lathe Chucks.....33⅓%
Universal Lathe Chucks.....40%
Independent Lathe Chucks.....40%
Drill Chucks.....15%
Union Mfg. Co.,
Victor.....$8.50, 25%
Combination.....40%
Universal.....40%
Independent.....40%

Churns.
Tiffin Union, each, 5 gal. $3.25; 7 gal. $3.75; 10 gal..$4.25.
McDermald Star Barrel Churn, each 6 gal., $3.60; 10 gal., $3.75 15 gal. 3.00 20 gal., 3 25

Clamps—
R. I. Tool Co.'s Wrought Iron.....35%
Adjustable, Cincinnati.....15&10%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....30@30&10%
Stearn's Adjustable Cabinet and Corner.....30@30&10%
Cabinet, Sargent's.....60%&10%
Carriage Makers', Sargent's.....70&10%
Carriage Makers', P., S. & W. Co..40&10%
Eberhard Mfg. Co.....40&5@40&10%
Warner's.....40&10@40&10&5%
Saw Clamps, see Vises, Saw Filers'.
Carpenters', Cincinnati.....25&10%

Cleavers.
Butchers'.
Bradley's.....25@30%
L. & I. J. White.....30&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s.....40%
P., S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Loboff & Co.....40@40&5%

Clips—
Norway, Axle, ¼ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16. 65&5%
Superior Axle Clips.....66⅔&5@70%
Norway Spring Bar Clips, 5-16..60&5&5%
Wrought-Iron Felloe Clips.....₩ lb, 5½¢
Steel Felloe Clips.....₩ lb, 5¢
Baker Axle Clips.....25%

Cloth and Netting, Wire—See Wire, &c.

Cockeyes.....50%

Cocks, Brass.
Hardware list.....50&2%

Coffee Mills—See Mills, Coffee

Collars, Dog, &c.
Chapman Mfg. Company.....50&10@60%
Bedford Fancy Goods Co.....40&10%
Embossed, Gilt, Pope & Steven's list 50&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%

Combs, Curry.
Fitch's.....50&10@50&10&10%
Rubber, per doz $10.00.....90%
American Curry Comb Co.....Net prices

Compasses, Dividers, &c.—
Compasses, Calipers, Dividers.70@70&10%
Bemis & Call Co.'s
Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....55&10%
Starrett's
Spring Calipers and Dividers.....35&10%
Lock Calipers and Dividers.....25%
Combination Dividers.....25%

Coopers' Tools—See Tools, Coopers'.

Cord—
Sash.
Common.....₩ lb, 10¢ @ 11¢
Patent, good quality.....₩ lb, 12 @ 12¢
White Cotton Braided, fair.₩ lb, 24¼@25¢
Common Russia Sash.....₩ lb, 12½@13¢
Patent Russia Sash.....₩ lb, 14¢
Cable Laid Italian Sash.....₩ lb, 21@22¢
India Cable Laid Sash.....₩ lb, 12¢
Silver Lake—
A Quality, White, 50¢.....25 %
A Quality, Drab, 55¢.....25 %
B Quality, White, 30¢.....10 %
B Quality, Drab, 35¢.....10 %
Sylvan Spring Extra Braided White,34¢
Sylvan Spring, Extra Braided, Drab..30¢
Semper Idem, Braided, White.....30¢
Egyptian, India Hemp, Braided.....28¢
Massachusetts, White.....30¢
Samson—
Braided, White Cotton, 50¢..30@30&5%
Braided, Drab Cotton, 55¢...30@30&5%
Braided, Italian Hemp, 55¢..30@30&5%
Braided, Linen, 80¢.....30@30&5%
Tate's Cotton Braided, White, ₩ lb, 28¢,10%
Wire Picture.
Braided or Twisted.....75&10%

Corkscrews—See Screws, Cork.

Corn Knives and Cutters—See Knives, Corn.

Crackers, Nut—
Table (H. & B. Mfg. Co.).....40%
Blake's Pattern.....₩ doz $2.00, 10%
Turner & Seymour Mfg. Co.....50%

Cradles—
Grain.....50&5&2@50&10&2%

Crayons.
White Crayons, ₩ gross.....10¢
D. M. Stewart Mfg. Co., Metal Workers, ₩ gr, $2.50.....25%
D. M. Stewart Mfg. Co., Rolling Mill, ₩ gr, $2.50.....25%
See also Chalk.

Crow Bars—See Bars, Crow.

Curry Combs—See Combs, Curry.

Curtain Pins—See Pins Curtain.

Cutters—
Meat.
Dixon's ₩ doz.....40&5%
Nos..... 1 2 3 4
$14.00 $17.00 $19.00 $30.00
Woodruff's ₩ doz.....40&5%
Nos..... 100 150
$15.00 $18.00
Hales Pattern ₩ doz.....70@70&5%
Nos..... 11 12 13
$27.00 $33.00 $45.00
American.....30%
Nos..... 1 2 3 4 D 5
Each.....$5 $7 $10 $25 $50 $60
Enterprise.....50%
Nos..... 10 12 22 32 42
Each.....$3 $3.50 $4 $6 $15
at American Meat Cutter.....30%
Nos..... 112 116 118 120 122
Each.....$2.00 $2.75 $3.00 $3.50 $4.00
Kites' Challenge ₩ doz.....45@45&10%
Nos..... 1 2 3
$22.00 $30.00 $40.00
me No. 1 ..... ₩ doz $26.00, 55&10%
Draw Cut, each:
Nos..5 2 6 8
$50 $75 $80 $225 .....20@25%
Beef Shavers (Enterprise).....20&10@30%
Little Giant (P. S. & W. Co.).....50%
Chadborn's Smoked Beef Cutter, ₩ doz $66.00
Tobacco.
Champion.....20&10@30%
All Iron.....₩ doz $4.25
Nashua Lock Co.'s..₩ doz, $18.00 50@55%
Wilson's.....55%
Sargents's.....₩ doz, $24, 55&10%
Acme.....₩ doz $20.00, 40%
Washer.
Smith's Pat.....₩ doz $12.00, 20&10&10%
Johnson's .....₩ doz $11.00, 33⅓%
Penny's.₩ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....₩ doz $16.00, 60&10%
Bonney's.....30&10%
Cincinnati.....25&10%

Dampers, &c—
Dampers, Buffalo.....40&10%
Buffalo Damper Clips.....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Diggers, Post Hole, &c.—
Samson Post Hole Digger, ₩ doz $36.00, 25%
Fletcher Post Hole Augers, ₩ doz $36, 20%
Eureka Diggers.....₩ doz $12.50@14.00
Leed's .....₩ doz $8.00@9.00
Vaughan's Post Hole Auger, ₩ doz $13.00@14.00
Kohler's Little Giant.....₩ doz. $18.00
Kohler's Hercules.....₩ doz.15.00
Kohler' New Champion.....₩ doz. $9.00
Schniedler.....₩ doz. $18.00
Ryan's Post Hole Diggers..₩ doz $24.00
Cronk's Post Bars, ₩ doz $60.00, 50&5@50&10%
Gibbs Post Hole Digger.....₩ doz $15.00
Imperial.....₩ doz $7.50
Shimer's Hollow Handle,₩ doz, $24..50%

Dividers—
See Compasses.

Dog Collars—See Collars, Dog, &c.

Door Springs—See Springs, Door.

Drawers.
Money, ₩ doz.....$18&$20

Drawing Knives—See Knives, Drawing.

Drills and Drill Stocks—
Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50,20%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 25%
Breast, Bartholomew's....each $2.50, 25&10@40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll s.....25%
Ratchet, Parker's.....20@20&5%
Ratchet, Whitney's.....20&10%
Retchet, Weston's.....20@25%
Ratchet, Moore's Triple Action...25@30%
Ratchet, Curtis & Curtis.....30%
Whitney's Hand Drill, Plain, $11.00; Adjustable, $13.00.....20&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools....$1.75@$1.85
Twist Drills—
Cleveland.....50&10&5%
Diamond, W. & B.....50&10&5%
Graham's Pat. Groove Shank 50&10&5%
Morse.....50&10&5%
Ratchet, Whitney's.....50&10&5%
Standard.....50&10&5%
Syracuse (Metal list).....50&10%

Drill Bits or Bit Stock Drills—See Augers and Bits.

Drill Chucks.—See Chucks.

Dripping Pans—See Pans, Dripping.

Drivers, Screw.
Douglas Mfg. Co.....30@30&10%
Diston's.....50%
Buck Bros.....30%
Stanley R. & L. Co.'s
No. 64, Varnished Handles.....65&10%
No. 86.....70&10%
Sargent & Co.'s
No. 1 Forged Blade.....60&10&10%
Nos. 20, 30 and 60. .....60%&10&10%
P. S. & W.....70 %
Knapp & Cowles:
No. 1.....60&10@70%
No. 2.....60&10&10@70&5%
No. 3.....60&5@60&10%
Nos. 4 and 00, Acme and Ideal..50& 5@50&10&5%
Stearns'.....25&10&5%
Gay & Parsons.....35%
Champion.....25&10%
Clark's Pat.....30@33⅓%
Crawford's Adjustable.....30%
Ellrich's Socket and Ratchet..25@35&10%
Allard's Spiral, new list.....25%
Kolb's Common Bense ₩ doz $5.00,25&10%
Syracuse Screw-Driver Bits...30&30&5%
Screw-Driver Bits.....₩ doz. 50@75¢
Screw-Driver Bits, Parr's.....₩ gro $6.25
Fray's Hol. Hdle. Sets. No. 3, $12.00, 25@25&10%
P. D. & Co.'s all Steel.....50%
Cincinnati .....25&10%
Brace Screw Drivers.....25&10%
Buck Bros.' Screw-Driver Bits.....

Egg Beaters.—See Beaters, Egg.

Egg Poachers.—See Poachers, Egg.

Electric Bell Sets.—See Bells, Electric.

Emery.

	No. 4 to 46 gr.	No. 54 to 150 gr.	Flour, CF F. FF.
Kegs, ₩ lb	4½¢	5 ¢	2½¢
¼ kegs, ₩ lb	4½¢	5½¢	2½¢
⅛ kegs, ₩ lb	5 ¢	5½¢	3 ¢
10-lb cans, 10 in case	6 ¢	6½¢	5 ¢
10-lb cans, less than 10	10 ¢		

Enameled and Tinned Ware—See Ware, Hollow.

Escutcheon Pins—See Pins, Escutcheon.

Escutcheons.
Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood 25%

Expanded Metal.
List No. 5.
Lathing. 10%
Fencing, Painted Sheets.....20%
Netting, Painted Sheets.....20%
Door Mats, Galvanized.....25%
Window Guards, Paneled.....15%
Tree Guards, Paneled.....15%

Extractors, Lemon Juice—See Squeezers, Lemon.

Fasteners, Blind—
Mackrell's, ₩ doz. $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ₩ gr..60&10%
Van Sand's Old Pat., $15.00 ₩ gr..55&10%
Austin & Eddy No. 2008 ₩ gr.....$9.00
Security Gravity, ₩ gr.....$2.00
Zimmerman's.....45 %

Faucets.—
Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Frary's Pat. Petroleum.....40&5&2%
B. & L. B. Co.
West's Lock, Open and Shut Key..50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..50%
Metallic Key, Leather Lined....60&10@ 60&10&10%
Cork Lined.....70&5@70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers'
Peerless Best Block Tin Key.....40%
IXL, 1st quality, Cork Lined.....50%
Diamond Lock.....40%
Perfection, Fla. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....50%
Self-Measuring
Enterprise, ₩ doz $36.00.....20&10%
Lane's, ₩ doz $36.00.....25&10%
Victor, ₩ doz $36.00.....25&10%

Felloe Plates—See Plates, Felloe.

Fifth Wheels.—
Derby and Cincinnati.....45&5%
Brewster.....50&5%

Files—
Domestic—
Nicholson Files, Rasps, &c.....60&10@60&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75%
(extra prices on certain sizes)
G. & H. Barnett (Black Diamond).....60&10&60&10&5%
Arcade.....60&10@60&10&10%
Eagle.....60&10&5@60&10&10%
Other makers, best brands60&10@60&20%
Fair brands .....60&10&10@70&5%
Second quality .....70&10@75&10%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps. .....50&10%
Cheuse, Horse Rasps, Hand Cut...50&10%
Arcade Horse Rasps.....60&10%
Imported
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25@30%

Fixtures.
Grindstone—
Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%
P., S. & W. Co.....50&10%

Fluting Machines—See Machines, Fluting.

Fluting Scissors—See Scissors, Fluting.

Fodder Squeezers—See Squeezers, Fodder.

Forks—
Hay, Manure, &c., Asso. List...70@70&5%
Hay, Manure, &c., Phila. List.60@60&10%
Plated, see Spoons.

Frames—
Saw—
White Vermont.....₩ gro $9.00@10.00
Red, Polished and Varnished.....₩ doz $1.50, 25%
Screen, Window and Door—
Porter's Pat. Window and Door Frame. 33⅓&10%
Warner's Screen Corner Irons..33⅓@ 33⅓&10%
Stearns' Frames and Corners..35@35&10%
Cortland.....40@40&5%

Freezers, Ice Cream—
White Mountain.....60@60&5%
Granite State.....65@65&5%
Arctic .....70@70&5%
American.....60%
Buffalo Champion.....65@65&2½
Shepard's Lightning.....65@65&2½
Gem.....35%
Blizzard.....70%
Double Action Crown.....60%
Crown.....60%
Star 50%
Peerless.....60&10%
Giant.....60%
Zero.....60&10&10%
Boss and Pet.....60&10&10&10%
Keystone, P. D. & Co., each $1.50.....30%

Fruit and Jelly Presses—See Presses, Fruit and Jelly.

Fry Pans—See Pans, Fry.

Funnels.
Gersdorff's Perfection, Standard and Globe; *Tin*, 1 gro., 10 %; 2 to 5 gro., 20 %; 5 to 10 gro.....30 %
Copper, 1 to 6 doz., 15 %; 6 to 12 doz., 20 %; over 12 doz.....25 %

Furnaces, Soldering.
Burgess No. 3 Gem, tin reservoir....$7.00
Burgess No. Gem, copper reservoir 8.50

Fuse—Dis. 12½%. ₩ 1000 ft.
Common Hemp Fuse, for dry ground..$3.70
Common Cotton Fuse, for dry ground 2.35
Single Taped Fuse, for wet ground.. 3.35
Double Taped Fuse, for very wet gr. 4.35
Triple Taped Fuse, for very wet gr.. 5.60
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gates, Molasses—
Stebbin's Pattern.....30@30&5%
Stebbin's Genuine.....60&10&10%
Stebbin's Tinned Ends.....40&10%
Chase's Hard Metal.....50&10%
Bush's.....30%
Lincoln's Pattern.....70@70&10%
Weed's.....30&10%
Boss, ₩ doz:
No. 1, $7; No. 2, $8; No. 3, $9; No. 4, $10.....50&10&10%

Gauges.
Marking, Mortise, &c.....50&10%
Starrett's Surface, Center and Scratch. 25&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....30&10%
Wire, Wheeler, Madden & Co.....10%
Wire, Horse's.....25%
Wire, Brown & Sharpe's.....10@30%
Wire, P. S. & W. Co.....10&10

Gimlets—
Nail and Spike.....50&10&5%
"Eureka" Gimlets.....40&10%
"Diamond" Gimlets.....₩ gr $5.00
Double Cut, Shepardson's.....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%

Glue—
Le Page's Liquid.....25@25&5%
Upton's Liquid 25%
Improved Process.....25@25&5%
Dodd's Liquid Glue.....25@25&5%

Glue Pots—See Pots, Glue.

Grease, Axle.
Fraser's .....Keg ₩ lb 4¢, Pail ₩ lb 5¢
Fraser's, in boxes.....₩ gr $0.80
Dixon's Everlasting, in bxs...₩ doz 1 lb $1.50; 2 lb $2.00
Dixon's Everlasting....10-lb palls, ea. 85¢
Lower grades, special brands ₩ gr $5.50@$7.00

Grindstones—
Small, at factory.....₩ ton $7.50@8.00
Family, regular list.....60%
Family, Cleveland Stone Co.....20 %

Grindstone Fixtures—See Fixtures Grindstone.

Gun Powder—See Powder.

Hack Saws—See Saws.

Hafts, Awl.
Sewing, Brass Fer. ₩ gr, $3.50.....45&10%
Pat. Sewing, Short.$1.00 ₩ doz.....10&10%
Pat. Sewing, Long.....₩ doz $1.20
Pat. Peg, Plain Top.₩ gr $10.00...45&10%
Pat. Peg, Leather Top.₩ gr $12.00.45&10%

Halters.
Covert's, Rope, Jute..... 60&10&10&2%
Covert's, Rope, 7-16-in., Jute.....70&2%
Covert's, Rope, ½-in. Hemp .....50&2%
Covert's Adj. Rope Halters .....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse Ties.....70&2%
Covert's Jute Cattle Ties.....70&10&2%
Covert's Adj. Web Halters.....35&5&2%
E. Covert Mfg. Co.'s Halters.....33⅓&5
E. Covert Mfg Co.'s Horse and Cattle Ties 33⅓

Hammers—
Handled Hammers—
Maydole's, list Dec. 1, '85.....25&10@35%
Buffalo Hammer Co.....
Humason & Beckley.....
Atha Tool Co.....
Verree.....
} 50@50&10%
C. Hammond & Son.....40&10@—%
Fayette R. Plumb.
Artisans' Choice, A. E. Nail.....40&10%
Regular Y. & P., A. E. Nail.....50%
Horseshoe Turning Hammers.....50%
Other Hammers.....50&10%
Cheney's Claw .....40&10%
Cheney's Machinist's & Riveting.50&5%
Hartford, Nail Hammers.....40&5%
Hartford, Machinists, &c...50&5@50&10%
Magnetic Tack, Nos. 1, 2, 3, $1.35, 1.50 & 1.75.....40&10%
Nelson Tool Works.....40&10%
Warner & Nobles.....30@35
Peck, Stow & Wilcox 40%
Sargent's.....33⅓&10%
Heavy Hammers and Sledges—
2 lb and under..... ₩ lb 40¢
3 to 5 lb..... ₩ lb 36¢ } 70@70&10%
Over 5 lb..... ₩ lb 30¢ }
Wilkinson's Smiths.....10½¢@11¢₩ lb

Handcuffs and Leg Irons—See Police Goods.

Handles—
Cross-Cut Saw Handles—
Atkins' No. 1 Loop, ₩ pr., 28¢; No 3, 18¢; No. 6, 15¢; No. 2 and No. 4, Reversible, 18¢.
Champion.....18¢
Iron, Wrought or Cast—
Door or Thumb.

Nos.	0	1	2	3	4
Per doz.	$0.90	1.00	1.10	1.35	1.50

60&10&

Goggin's Latches.....₩ doz 30¢@35¢
Bronze Iron Drop Latches..₩ doz 70¢ n
Jap'd Store Door Handles—Nuts, $1.02½ ₩ Plate, $1.10 ; no Plate, $0.88 ..... net
Barn Door, ₩ doz $1.40.....10&10%
Chest and Lifting.....70%
Wood—
Saw and Plane.....40&10@40&10&5
Hammer, Hatchet, Axe, &c... 40@40&5%
Brad Awl.....₩ gr $2.00
Hickory Firmer Chisel, ass'd..₩ gr 4.50
Hickory Firmer Chisel, large..₩ gr 5.00
Apple Firmer Chisel, ass'd...₩ gr 5.00
Apple Firmer Chisel, large...₩ gr 6.00
Socket Firmer Chisel, ass'd..₩ gr 3.00
Socket Framing Chisel, ass'd.₩ gr 5.00
J. B. Smith & Co.'s Pat File 50
File, assorted..... ₩ gr 2 75 }
Auger, assorted..... ₩ gr 5.00 } 50%
Auger, large..... ₩ gr 7.00 }
Pat. Auger, Ives'.....30&1
Pat. Auger, Douglass.....₩ set $1.35
Pat. Auger, Swan's..... ₩ set $1.00
Hoe, Rake, Shovel, &c..... ...50&10%

Hangers—

Barn Door, old patterns...60&10&10@70%
Barn Door, New England...60&10&10@70
Samson Steel Anti-Friction.....55%
Orleans Steel.....55%
Hamilton Wrought Wood Track.....55%
U. S. Wood Track.....65%
Champion.....60&10%
Rider and Wooster, Medina Mfg. Co.'s list.....70%
Ultmax Anti-Friction.....55%
Ultmax Anti-Friction for Wood Track55%
Smith for Wood Track.....55%
Reed's Steel Arm.....50%
Challenge, Barn Door.....50%
Sterling.....50@50&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00.....50&2%
Cheritree.....50&10%
Kidder's.....40&10@50%
Boss.....60&10%
Best Anti-Friction.....60&10%
Duplex (Wood Track).....60&10&10&5%
Terry's Pat., ₩ dos pr. 4 in, $10.00; 5 in. $12.00.....50&10%
Terry's Steel Anti-Friction Leader 50&10%
Terry's Steel Anti-Friction Ideal..50&10%
Cronk's Patent, Steel Covered.....50@5%
Wood Track Iron Clad, ₩ ft. 10¢.....50 &15@60%
Carrier Steel Anti-Friction.....50&10%
Architect, ₩ set $6.00.....20%
Eclipse.....20&10%
Felix, ₩ set $4.50.....20%
Richards'.....30@30&10%
Lane's Standard.....50&5@50&10%
Lane's New Standard.....50@50&5%
Lane's Parlor.....40%
Ball Bearing Door Hanger..20&10@25&10%
Warner's Pat.....20&10@20&10&10%
Stearns' Anti-Friction.20&10@20&10&10%
Stearns' Challenge.....25&10@25&10&10%
Faultless.....40@40&5%
American, ₩ set $6.00.....20&10%
Rider & Wooster, No. 1, 60¢; No. 2, 75¢.....40%
Paragon, Nos. 1, 2 and 3.....40&10%
Cincinnati.....25&10%
Paragon, Nos. 5, 5¼, 7 and 8.....20&10%
Crescent.....60@60&10%
Nickel Cast Iron.....50%
Nickel, Malleable Iron and Steel.....40%
Scranton Anti-Friction Single Strap33⅓%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00.....45%
Star.....40&10@40&10&5%
May.....50&5@50&10%
Barry, $6.00.....40&10%
Interstate.....50%
Magic.....45%
Pendulum, Payson's.....4?%
Moody.....45%

Harness Snaps—See Snaps.

Hatchets—

American Axe and Tool Co.
Blood's.....
Hunt's.....
Hurd's.....
Mann's.....
Peck's.....
Underhill's.....
Buffalo Hammer Co.....
Fayette R. Plumb.....
C. Hammond & Son.....
Kelly's.....
Sargent & Co.....
P., S. & W. Co.....
Ten Eyck Edge Tool Co.....
} 40 & 10 @ 50&5 %
Collins.....10%
Schulte, Loboff & Co.....60@50&5%

Hay and Straw Knives—See Knives.

Hinges—

Blind Hinges—

Parker.....75&2%
Huffer.....50%
Clark's, Nos. 1, 3, 5, 40 and 50.....75&10&5@30%
Clark's Mortise Gravity.....50%
Sargent's Nos. 1, 2, 5, 11, 12.....75&10@55&10&5%
Sargent's, No. 12.....77&10&10%
Reading's Gravity.....75&10@75&10&5%
Shepard's
Noiseless.....75&10%
Niagara.....80%
Buffalo.....80%
Clark's Genuine Pattern.....80%
O. S., Lull & Porter.....75&10%
Acme, Lull & Porter.....75%
Queen City Reversible....70&10&5@75%
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3.....75&10&5@2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%

Gate Hinges—

Western.....₩ dos $4.40, 60%
N. E.....₩ dos $7.00, 55%
N. E. Reversible.....₩ dos $5.20, 55&10%
Clark's, Nos. 1, 2, 3.....60&10&5%
N. Y. State.....₩ dos $5.00, 55&10%
Automatic.....₩ dos $12.50, 50%
Shepard's.....60&10&5%

Spring Hinges—

Geer's Spring and Blank Butts.....40%
Union Spring Hinge Co.'s list, March 1886.....3 %
Barker's Double Acting.....25%
Union Mfg. Co.....25%
Bommer's.....
Buckman's.....15@20%
Chicago.....30%
Bardsley's Patent.....40%
Acme.....30%
U. S.....25&10%
Empire and Crown.....20%
Hero and Monarch.....55%
American, Gem, and Star.....20%
Oxford.....20%
Wiles'.....10%
Devore's.....40%
Rex.....40%
Royal.....60%
Reliable.....60%
Champion.....60%
Stearn's.....50&10%
Samson, ₩ gross.....$14.00
} Extra @10 % often given.

Wrought Iron Hinges.

List February 14, 1891.
rap and T.....50&10@5)&10&5%
Corrugated Strap & T.....50@50&10%
Screw Hook and Strap.....{ 6 to 12 in., ₩ D. 4¢ / 14 to 20 in., ₩ D.3½¢ / 22 to 36 in., ₩ D. 3¢
Screw Hook and Eye.....{ ¼ in., ₩ D 7¾¢ / ⅜ in., ₩ D 5¾¢ / ½ in., ₩ D 4¾¢
Rolled Blind Hinges, Nos. 32 and 34 .....50&10%
Rolled Blind Hinges, Nos. 333 and 234 .....55&10%
Rolled Plate.....70&10%
Rolled Raised.....70&10%
Plate Hinges "Providence" { 8, 10 & 12 in., ₩ D.....5¢ / over 12 in., ₩ D.....4¢

Hoes—

Eye—

D. & H. Scovil.....30%
Lane's Crescent Planters Pattern..45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat.....45&5%
Sandusky Tool Co., S. & O. Pat. } 70@70& 5%
Am. Axe and Tool Co., S. & O. Pat. }
Chattanooga Tool Co., S. & O. Pat..60& 5@60&10%
Grub.....60&10%

Handled—

Garden, Mortar, &c.....70%
Planter's, Cotton &c.....70%
Warren Hoe.....60%
Magic.....₩ dos $4.00

Hog Rings and Ringers—See Rings and Ringers.

Hoisting Apparatus—See Machines, Hoisting.

Hollow-Ware—See Ware, Hollow.

Holders.

Bag.

Sprengle's Pat.....₩ dos $18.....60%

Bit.

Extension,
Barber's, ₩ dos $15.00.....40@40&10%
Ives, ₩ dos $20.00.....60&5@60&10%
Diagonal.....₩ dos $24.00, 40%
Angular.....₩ dos $24.00, 40&5%

File and Tool—

Bals Pat.....₩ dos $4.00; 25%
Nicholson File Holders.....20%
Dick's Tool Holder.....20%

Hooks—

Cast Iron—

Bird Cage, Sargent's list.....
Bird Cage, Reading.....
Clothes Line, Sargent's list..
} 60&10&10%
Clothes Line, Reading list. 60&10@60&10&10%
Ceiling Sargent's list.....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading .50&10@50&10&10%

Wrought Iron—

Cotton.....₩ dos $1.25
Cotton Pat. (N.Y. Mallet & Handle W'ks). 30%
Tassel and Picture (T. & S. Mfg. Co.)...50%
Wrought Staples, Hooks, &c. See Wrought Goods.

Wire—

Wire Coat and Hat, Gem, list April, 1886.....60@60&10%
Wire Coat and Hat, Miles, list April, 1886.....50@50&10%
Indestructible Coat and Hat..45@45&5%
Wire Coat and Hat, Standard.60@60&10%
Handy Hat and Coat.....50&10@60%
Steady Ceiling Hooks.....50&10@60%
Belt.....80@80&10%
Atlas, Coat and Hat.....60@60&10%
Bright Wire Goods, see *Wire*.

Miscellaneous.

Grass, No. 2, $2.00: No. 3, $2.25; No. 4, $2.50
Nolin's Grass.....₩ dos $2.25
Bush.....55@60%
Whiffletree—Patent.....55%
Hooks and Eyes—Malleable Iron. 70@70&10%
Hooks and Eyes—Brass.....60&10&10%
Fish Hooks, American.....50%
Bench Hooks.....See Bench Stops.

Horse Nails—See Nails, Horse.

Horse Shoes—See Shoes, Horse.

Hose, Rubber—

Competition.....75@75&10&5%
Standard.....60&10&10@70&10%
Extra.....60@60&10%
N. Y. B. & P. Co., Para.....25&5%
N. Y. B. & P. Co., Extra.....40@40&5%
N. Y. B. & P. Co., Dundee....50&10@60%

Huskers—

Blair's Adjustable.....₩ gr $8.00
Blair's Adjustable Clipper.....₩ gr 7.00
Hubbard's Solid Steel.....₩ gr 4.50

Indurated Fiber-Ware—See Ware, Indurated Fiber.—

Irons.

Sad—

From 4 to 10, at factory....₩ 100 ℔, $2.30@$2.40
Self-Heating.....₩ dos $9.00 net
Self-Heating, Tailors'....₩ dos $18.00 net
Mrs. Pott's Irons.....60@60&10%
Enterprise Star Irons.....60@60&10%
XX Cold Handle Sad Iron.....50&5@60%
Ideal Irons new list.50&10@50 & 10&10%
Salamander, Irons.....25%
B. B. Sad Irons, ₩ ℔.....3 @3¼¢
Combined Fluter and Sad Iron, ₩ dos, $15.00.....15%
Fox Reversible, Self-Fluter ₩ dos $24.00
Chinese Laundry (N.E. Butt Co.) 8½¢, 15%
New England.....9¢, 15%
Mahony's Troy Pol. Irons.....25%
Sensible, list Jan. 91.....50&10&5%
Sensible Tailor's Irons.....33⅓ %
National Self-Heating.....30 %

Soldering—

Soldering Coppers.....₩ ℔ 19 @ 21¢
Covert's Adjustable, list Jan. 1 1886. 35&2%

Irons, Pinking, per dos., 65¢.

Jack Screws—See Screws.

Jacks, Wagon.

Daisy.....33⅓%
Victor.....33⅓%
Lockport.....40%

Kettles—

Brass, Spun, Plain, list Jan. 1, '91..25&5%
Brass, Spun, Pld.W.M.list Jan. 1, '91.20%
Enameled and Tea—See Hollow Ware.

Keys—

Lock Asso'n list Dec. 30, 1886...50&10@ 60&5%
Eagle, Cabinet, &c.....33⅓&2%
Hotchkiss' Brass Blanks.....40%
Hotchkiss, Copper and Tinned.....40%
Hotchkiss' Pad. and Cab.....35%
Ratchet Bed Keys.....₩ dos $4.00, 15%
Wollensak Tinned.....50&10%

Knife Sharpeners—See Sharpeners, Knife.

Knives.

Butcher, Shoe, &c—

Wilson's Butcher Knives, List Dec. 8, 1890.....25%
Ames' Butcher Knives.....25%
Foster Bros.' Butcher, &c.....40%
Jordan's AAA1, Butchers', list.....net
Nichols' Butcher Knives.....40&10%
W. W. Wilson, Butcher, 6 in., $2.00; 7 in., $2.70; 8 in., $3.30, &c.
Ames' Shoe Knives.....20@35%
Ames' Bread Knives..₩ dos $1.50, 15@20%
Moran's Shoe and Bread.....20%
Hay and Straw.....See Hay Knives.
Table and Pocket.....See Cutlery.
Corn, Auburn Mfg. Co. Western Pat., $2.00
Corn, Auburn Mfg. Co. Crescent....$3.50

Corn—

Bradley's.....10%
Wadsworth's.....25%

Drawing—

Witherby.....
P. S. & W.....
Mix.....
New Haven.....
Merrill.....
} .75 @ 75&10 %
Douglas.....75@75&2%
Watrous.....15&10@35%
L. & I. J. White.....20&5%
Bradley's.....35%
Adjustable Handle.....25@33⅓%
Wilkinson's Folding.....25@25&5%

Hay and Straw—

Lightning, from jobbers....$3.00 @ $9.00
Wadsworth's.....40&7½@40&10%
Carter's Needle.....₩ dos $11.00@$11.50
Heath's.....₩ dos $13.00@13.50
Auburn Hay, Com. and Spear Point..50%
Auburn, Straw.....40%
Nolin's Hay.....₩ dos.$7.00 @ $8.00

Mincing.

Am. (3d quality), ₩ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18.....net
Lothrop's.....20&10%
Smith's, ₩ dos, Single, $2.00: Double, $3 40@45%
Knapp & Cowles.....50&10@60%
Buffalo Adjustable.....₩ dos $3.00 25%
Buffalo Double Adj'table.₩ dos $3.00 25%

Knobs—

Door Mineral.....60@65%
Door Por. Jap'd.....70@75%
Door Por. Nickel.....$2.00@2.25
Door Por. Plated, Nickel.....$2.00@2.25
Drawer, Porcelain.....60&10@60&10&10%
Hemacite Door Knobs.....40&10@50%
Yale & Towne Wood, list Dec., 1885..40%
Furniture Plain.....75¢ gro inch, 10%
Furniture, Wood Screws.....25&10%
Base, Rubber Tip.....70&10&5%
Picture, Judd's.....60&10&10@70%
Picture, Sargent's.....70&10%
Picture, Hemacite.....55&5%
Shutter, Porcelain.....65&10%
Carriage, Jap.....₩ gro 80¢, 60&10%
Bardsley's Wood Door, Shutter, &c..40%

Ladies'—

Melting, Sargent's.....55&10%
Melting, Reading.....35&10%
Melting, Monroe's Pat...₩ dos $4.00, 40%
Melting, P. S. & W.....35&10@40%
Melting, Warner's.....30%

Lanterns—

Tubular—

Plain with Guards, ₩ dos.....$3.75@$4.00
Lift Wire, with Guards.....$4.00@4.25
Square Plain, with Guards.....$3.75@4.00
Sq. Lift Wire, with Guards.....$4.50

Police Lanterns (including packages).

2¾-inch Bull's-eye Police regular. ₩ dos $3.80
3-inch Bull's-eye Police regular. ₩ dos $3.90
2¾-inch Bull's-eye Police flash light. ₩ dos $4.00
3-inch Bull's-eye Police flash light. ₩ dos $4.50

Lawn Mowers—See Mowers, Lawn.

Leaders, Cattle.

Humason. Beckley & Co.'s.....70%
Sargent's.....65%&10%
Hotchkiss.....30%
Peck, Stow & W. Co.....60&10%

Lemon Squeezers—See Squeezers, Lemon.

Lifters, Transom.

Wollensak's:
Class 3 and 4, Bronzed Iron.....50%
Class 3 and 4, Bronze Metal.....25%
Class 3 and 4, Brass.....35%
Skylight Lifters.....35%
Crown, Eagle and Shield.....50%
Reliher's, list Feb. 20, 1891.
Bronzed Iron Rods.....50&10&10&2%
Brass. Real Bronze or Nickel Plate..30%
Excelsior.....50&10&2. %
Shaw's.....50&10%
Payson's:
Universal.....60%
Solid Grip.....60&10%
Imperial.....50&10%

Lines—

Cotton and Linen Fish, Draper's.....50%
Draper's and Tate's Chalk.....60%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.....25%
Cotton Chalk.....55%
Samson, Cotton, No. 4, $3; No. 4½, $2.80; 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₩ gro.....25%
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50,
Mason's Colored Cotton.....45%
Wire Clothes.. Nos. 12 19 20
100 ft.....$3.50 $3.00 $2.50
Ventilator Cord, Samson Braided. White or Drab Cotton..₩ dos $7.50, 20%

Links, Open.

Terry's—per gro.:

Nos.....	1	2	3	4
	$6.00	8.00	12.00	16.00

Locks, &c.—

Cabinet—

Eagle, Gaylord Parker and Corbin... } List March, '84, rev Jan. 1, '85..33⅓&2%
Deitz, Nos. 36 to 39.....40%
Deitz, Nos. 51 to 63.....40&10%
Deitz, Nos. 86 to 96.....30%
Stoddard Lock Co.....30&33⅓%
"Champion" Night Latches.....40%
Barnes Mfg. Co.....40@40&10%
Eagle and Corbin Trunk.....25&2%
"Champion" Cab. and Combin...33⅓%
Yale.....net prices
Romer's.....25%

Door Locks, Latches, &c.

R. & E. Mfg. Co., list Mar.30, 1889. } 65&10@70% Much lower net prices often made.
Mallory, Wheeler & Co., list July, '88.
Sargent & Co., list Aug. 1, '88
Reading Hardware Co., list Feb. 2, '88.
Branford Lock Works.....
Brittan, Granam & Mathes, list Jan. 1890.....60&10&10%
Perkins' Burglar Proof.....60&25%
Plate.....33⅓&2%
Barnes Mfg. Co.....40@40&10%
Yale.....net prices
Deits Flat Key.....30%
L. & C. Round Key Latches.....30&10%
L. & C. Flat Key Latches.....33⅓&10%
Romer's Night Latches.....15%
Brooklyn Latches.....50&10%
Shepardson or U. S.....35%
Seed's N. Y. Hasp Lock.....25%

Padlocks—

List June 10, 1891.....50&2%
Norwich Lock Mfg. Co., old list....70&3%
Yale Lock Mfg. Co.'s.....net prices
Eagle.....35&2%
Eureka, Eagle Lock Co.....40&2%
Romer's, Nos. 0 to 91.....30%
Romer's Scandinavian, &c., Nos. 100 to 500..15%
A. E. Deits.....40%
Champon Padlocks.....40%
Hotchkiss.....30%
Star.....60%
Horseshoe.....₩ dos, $9, 40@40&10%
Barnes Mfg. Co.....40@40&10%
Nock's.....30%
Brown's Pat.....25%
Scandinavian.....90@90&10%
E. T. Fraim's Keystone Scandavian. Nos. 119, 120, 130 and 140.....90&10% Other Nos.....
Ames Sword Co. up to No. 150.....60%
Ames Sword Co. above No. 150.....50%
Slaymaker Barry & Co.
No. 1010 line.....35&2%
No. 41 line.....45&10%
No. 61 line.....50&2%
No. 21 line.....75%

Sash, &c.

Clark's, No. 1, $10; No. 2, $8 ₩ gr..33⅓%
Ferguson's.....33⅓%
Victor.....60&10&2%
Walker's.....10%
Attwell Mfg. Co.....25&33⅓%
Reading.....60%&10@60%&10&10%
Hammond's Window Springs.....40%
Common Sense, Jap'd, Cop'd and Br'zed.....₩ gr $4.00
Common Sense, Nickel Plated ₩ gr $10.00
Universal.....30%
Kempshall's Gravity.....60%
Kempshall's Model.....60@60&10%
Corbin's Daisy, list Feb. 15, 1886.....70%
Payson's Perfect.....60&10%
Hugunin's Sash Balances.....25&5&2%
Hugunin's New Sash Locks.....25&5&2%
Stoddard "Practical".....10%
Ives' Patent.....60&10@60&10&5%
Fish (Liesche's pat.), No. 100, ₩ gr., $2; No 105, ₩ gr., $10.....40%
Davis, Bronze, Barnes Mfg. Co.....50%
Champion Safety, list January, 1889..70%
Security.....70%
Giant, list Jan.. 1892.....70&5%

Lumber Tools—See Tools, Lumber

Lustre—

Four-ounce Bottles....₩ dos, $1.75; ₩ gross.....$17.00

Machines.

Boring—

	Without Augers.	Upright.	Angular.
Douglas	$5.50	$6.75	.....50%
Snell's, Rice's Pat.	5.50	6.75	.40&10&10%
Jennings	5.50	6.75	.45@45&10%
Other Machines	2.35	2.75	.....
Phillips' Patent with Augers	7.00	7.50	.....
Miller's Falls	7.50	.....	.....25%

Fluting.

Knox, 4½-inch Rolls.....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each }
Eagle, 3¼-inch Roll, $2.15.....35%
Eagle, 5¼-inch Roll, $2.85.....35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each.....35%
Crown Jewel 6 in.....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each.....35%
Domestic Fluter.....each, $1.50
Geneva Hand Fluter, White Metal ₩ dos $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; $12.50; 3, $10.00.....30%
Shepard Hand Fluter, No. 85 ₩ dos 15 %0.....40%
Shepard Hand Fluter, No. 110 ₩ dos $11.00.....40%
Shepard Hand Fluter, No. 95 ₩ dos $8.00.....40%
Clark's Hand Fluter, ₩ dos $15.00.....35%
Combined Fluter and Sad Iron, ₩ dos $15.00.....30%
Buffalo.....₩ dos $10.00.....10%

Hoisting—

Moore's Hand Hoist, with Lock Brake.....30%
Moore's Differential Pulley Block....40%
Energy Mfg. Co's.....25%
Sure Grip Steel Tackle Blocks.....35%

Washing—

Anthony Wayne, ₩ dos No. 1, $51 No. 2, $45. No. 3 $42.
Western Star ₩ dos No. 2, $45; No. 3, $48
Weisel.....₩ doz $54.00
Fair and Square.....₩ dos $42.00

Mallets.
Hickory.....20&10@20&10&10%
Lignumvitæ.....20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. 30@30&10%

Mattocks. Regular list. 60&10@60&10&5%

Measures—
standard Fiberware, No. 1, peck, ₩ dozen, $4; ½-peck, $3.50.

Meat Cutters—See Cutters, Meat.

Menders, Harness—
Per doz.....$2.00

Mills.
Coffee—
Box and Side, List Jan. 1, 1888. 60@60&10%
Net prices are often made which are lower than above discount.
American, Enterprise Mfg Co. 20&10@30%
The Swift, Lane Bros.....20&10%

Mincing Knives—See Knives, Mincing.

Molasses Gates—See Gates, Molasses.

Money Drawers—See Drawers, Money.

Mowers, Lawn.
Philadelphia.....60&10%
Pennsylvania and Continental.....70%
New Model and Excel lor 60@70&10%
Other Machines.....60&10&10@75%

Muzzles—
Safety.....₩ dos, $3.00, 25%

Nails.
Cut and Wire. See Trade Report.
Wire Nails. Papered.
Association list, Apr. 11, '92 80&10&10%
Tack Mfrs.' list.....70@70&10%
Wire Nails, Standard Penny.
Card June 1 '89 base.....$1.95 @ $2.00

Horse—

Nos.	6	7	8	9	10	
American...	8¾	8¾	8¾	8¾	8¾	...net
Ausable....	28@	26@	25@	24@	23@.	
						40&5&5&2%
Clinton, Fin.	19@	17@	16@	15@	14@	.30&10%
Essex.....	28@	26@	25@	24@	23@.	
						40&10&5&2%
Lyra.....	19@	17@	16@	15@	14@	.40&5 %
Snowden	19@	17@	16@	15@	14@.	40&5 %
Putnam.....	23@	21@	20@	19@	18@.	
						15@15&5&5%
Vulcan.....	23@	21@	20@	19@	18@	.....25%
Northwest'n.	25@	23@	22@	21@	20@.	
						25@25&5%
A. C.....	25@	23@	22@	21@	21@.	
						25&10@33⅓&5%
C. B.-K.....	25@	23@	22@	21@	21@.	
						25&10@33⅓&5%
Maud S.....	25.,	23@	22@	21@	21@.	
						40&10&5 %
Champlain..	28@	26@	25@	24@	23@.	
						40&5&5&2%
Saranac.....	23@	21@	20@	19@	18@.	...40&5%
Champion	25@	23@	22@	21@	20@.	
						10&10&10%
Capewell....	19@	18@	17@	16@	16@.	.....10%
Anchor.....	23@	21@	20@	19@	18@	.....30%
Western.....	23@	21@	20@	19@	18@.	.....50%
Empire Bronsed.						.....14 ₩ ₺.

Picture—
Brass Head, Sargent's list.....50&10&10%
Brass Head, Combination list.....50&10%
Porcelain Head, Sargent's list. 50&10&10%
Porcelain Head, Combination list. 40&10%
Niles' Patent.....40%

Nail Pullers.—See Pullers, Nail.

Nail Sets.—See Sets, Nail.

Nut Crackers.—See Crackers, Nut.

Nuts—List Dec. 18, 1889.

	Square.	Hex.
Hot Pressed.....	5.35¢	5.95¢ off list.
Cold Punched....	5.00¢	5.10¢ off list.

In packages of 100 ₺, add 1-10¢ ₩ ₺, net; in packages less than 100 ₺, add ¼¢ ₩ ₺, net.

Oakum—
Best or Government.. ₩ ₺ 6¾@7¼¢
U. S. Navy..... ₩ ₺ 5¾@6¢
Navy..... ₩ ₺ 5¢@5¼¢

Oilers—
Zinc and Tin.....65&10@70&5%
Brass and Copper.....50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $5.60; No. 2, $4.00; No. 3, $4.40 ₩ doz. 10@10&5%
Malleable, Hammers, Old Pattern, same list.....40%
Prior's Pat. or "Paragon" Zinc, 60&10&10%
Prior's Pat. or "Paragon" Brass.....50%
Olmstead's Tin and Zinc.....60%
Olmstead's Brass and Copper.....50%
Broughton's Zinc.....60%
Broughton's Brass.....50%
Gem P. D. & Co. ..... ₩ gro. $2
Steel, Draper and Williams.....50%

Openers, Can.
Messenger's Comet..... ₩ doz $3.00, 25%
American..... ₩ gross $2.75@$3.00
Duplex..... doz 25¢, 15@20%
Lyman's..... ₩ doz $3.75, 20%
No. 4 French..... ₩ doz $2.25, 55@60%
No. 5, Iron Handle..... ₩ gr $6.00, 45@50%
Eureka..... ₩ doz $2.50, 10%
Sardine Scissors..... ₩ doz $2.75@3.00
Star..... ₩ doz $2.75
Sprague, No. 1, $2.00 2, $2.25; 3, $2.50- 50&10&10%
Excelsior No. 1 $2.50; No. 2, $1.50 ...40%
World's Best, ₩ gross, No. 1, $12.00- No. 2, $24.00; No. 3, $36.00.....50&10%
Universal, ₩ doz $3.00..... .....55&5%
Domestic, ₩ doz $2.50..... .....45%
Champion ₩ doz $2.00..... .....50%

Packing, Steam—
Rubber—
Standard..... .....70@70&10%
Extra..... .....60@60&5%
N. Y. B. & P. Co., Standard..... .....50%
N. Y. B. & P. Co., Empire..... .....60%
N. Y. B. & P. Co., Salamander..... .....25%
Jenkins' Standard. ₩ ₺ 80¢,...25@25&5%

Miscellaneous—
American Packing.....10¢@11¢ ₩ ₺
Russia Packing..... .....14¢ ₩ ₺
Italian Packing..... .....13¢@14¢ ₩ ₺
Cotton Packing..... .....15¢@17¢ ₩ ₺
Jute..... .....7¢@8¢ ₩ ₺

Palls.
Galvanized Iron—

	Quarts	10	12	14
Hill's Light Weight, ₩ doz.	$2.75	3.00	3.25	
Hill's Heavy Weight, ₩ dz.	3.00	3.25	3.75	
Helwig's.....	2.50	2.75	3.00	
Sidney Shepard & Co.....	2.25	2.50	3.00	
Iron Clad.....	2.50	2.75	3.00	
Fire Buckets.....	2.75	3.25	3.50	

Buckets, see Well Buckets.
Indurated Fibre Ware—25%
Star Pails, 12 qt..... ₩ doz $5.40
Stable and Milk, 14 qt..... ₩ doz $6.00
Fire Pails, deep..... ₩ doz $5.40
" " round bottom.... ₩ doz $7.80
Standard Fibre Ware—

	Plain.	Deer'd
Water Pails, 12 qt., per doz.	$4.00	$4.50
Dairy Pails, 14 qt., per doz.	4.50	5.00
Fire Pails, No. 1, 12 qt. per doz	4.50	
Fire Pails, No. 2, 14 qt. per doz	5.00	
Sugar Pails.....	6.00	6.50
Horse Pails.....	5.00	
Buggy Pails.....	4.00	
Slop Jars (bal. trap).....	8.00	9.00
Chamber Pails, 14-qt.....	6.50	7.50

Pans.
Dripping.
Smalls [illegible]..... ₩ ₺ 6¼¢
Large sizes..... ₩ ₺ 5¾¢
Silver & Co. (Covered)..... 40%
Fry—
Standard List:

No.....	0	1	2	3	4
₩ doz..	$3.00	$3.75	$4.25	$4.75	$5.25
No.....	5	6	7	8	
₩ doz....	$6.00	$7.00	$8.00	$9.00	

Polished, regular goods.....75@75&10%
Acme Fry Pans..... .....60&10%
Dust—
Steel Edge, No. 1..... ₩ doz $1.75

Paper and Cloth—
Sand and Emery—
List April 19, 1886..... .....50@50&10%
Sibley's Emery and Crocus Cloth.....30%

Parers.
Apple.
Advance..... ₩ doz $4.75
Baldwin..... ₩ doz 5.25
Bonanza..... .....each 5.00
Daisy..... ₩ doz 4.00
Dandy..... .....each 7.50
Eclipse..... ₩ doz 4.25
Eureka, 1888..... .....each 16.00
Family Bay State..... ₩ doz 12.00
Favorite..... ₩ doz 5.00
Gold Medal..... ₩ doz 4.00
Ideal..... ₩ doz 4.00
Improved Bay State.. ₩ doz $7.00 @ $9.00
Little Star..... ₩ doz 4.50
Monarch..... ₩ doz 13.50
New Lightning..... ₩ doz 5.50
Oriole..... ₩ doz 4.00
Penn..... ₩ doz 4.00
Perfection..... ₩ doz 4.00
Pomona..... ₩ doz 4.00
Rocking Table..... ₩ doz 6.00
Turn Table..... ₩ doz 4.50
Victor..... ₩ doz 13.50
Waverly..... ₩ doz 4.00
White Mountain..... ₩ doz 4.00
78..... ₩ doz 4.25
78..... ₩ doz. 7.00
Potato—
White Mountain..... ₩ doz $4.50
Antrim Combination..... ₩ doz $5.50
Hoosier..... ₩ doz $12.50
Saratoga..... ₩ doz $5.50

Pencils—
Faber's Carpenters'..... .....high list 50%
Faber's Round Gilt..... ₩ gro $5.28
Dixon's Lead..... ₩ gro $4.50
Dixon's Lumber..... ₩ gro $6.75
Dixon's Carpenters'..... .....10%

Picks—
Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00.....60&10@60&10&5%

Picture Nails.—See Nails, Picture.

Pinking Irons.—See Irons, Pinking.

Pipe.
Bow—
Humason, Beckley & Co.'s.....60&10%
Sargent & Co's....$17 and $18.....60&10%
Peck, Stow & W Co.....50&10&10&5%
Curtain—
Silvered Glass..... .....net
White Enamel..... .....net
Escutcheon.
Iron, list Nov. 11, 1885..50&10&10&5%
Brass..... .....60@60&5%

Pipe, Wrought Iron—
List September 18, 1889.
1¼ and under. Plain..... 60&5@60&10%
1¼ and under, Galvanized. 50&5@50&10%
1¼ and over, Plain..... 70&5@70&10 %
1¼ and over, Galvanized. 60&5@60&10%
Boiler Tubes.
Sizes up to 2¾ in. inclusive...57½@60%
Sizes 3 in. and larger..... 60@65%
Casing..... .....55%
Inserted Joints Casing..... .....50%
Steel Boiler Tubes..... .....30%

Planes and Plane Irons—
Wood Planes—
Molding..... .....40&10%
Bench, First Quality..... .....50&10%
Bench, Second Quality..... .....55&10%
Bailey's (Stanley R. & L. Co.).... 50&10%
Iron Planes—
Bailey's (Stanley R. & L. Co.)..... .....30&10%
Miscellaneous Planes (Stanley R. & L. Co.) ....25&10%
Steer's Iron Planes..... .....35@35&10%
Merrlam Mal. Iron Co.'s..... .....40@40&10%
Davis's Iron Planes..... .....40@40&10%
Birmingham Plane Co..... .....50@50&10%
Gage Tool Co.'s Self-Setting...20&10&10%
Chaplin's Iron Planes..... .....40@40&10%
Sargent's..... .....30&10@30&10&10%
Standard Tool Co..... .....50@50&5%
Plane Irons—
Butcher's..... .....$5.00@$5.25 to 2
Buck Bros..... .....30%
Auburn "Thistle.....
Ohio.....
Sandusky..... .....30&10%
S. & I. J. White..... .....25%
Stanley R. & L. Co..... .....50&10%

Plates.
Fellow..... ₩ ₺ 6¢@6½¢

Pliers and Nippers.
Button's Patent..... .....50@50&10%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in. $21.00 ₩ doz..... .....40%
Humason & Beckley Mfg. Co. .50@50&10%
Lindsay's Giant..... .....40%
Gas Pliers..... .....60%
Gas Pliers, Custar's Nickel Plated..60@5%
Eureka Pliers and Nippers..... .....40%
Russell's Parallel..... .....25%
P. S. & W. Cast Steel..... .....50%
P. S. & W. Tinners' Cutting Nippers, add 6¢ dis 10%
Carew's Pat. Wire Cutters..... .....20%
Morrill's Parallel, ₩ doz, $12.00....30@5%
Cronk's 8 in., $15.00; 10 in. $21.00, 5%@50&5%
Cronk's Button Pa tern..... 50&10@40%
Cronk's Carrier Pli rs..... .....60@60&5%

Plumbs and Levels—
Regular List ....75&10@75&10&5%
Stanley's Duplex ....20&10%
Stanley's Handy..... .....20&10%
Disston's..... .....50%
Pocket Levels..... .....70&10@70&10&10%
Davis Iron Levels..... .....30%
Davis' Inclinometers ....10&10%

Poachers.
Egg.
Buffalo Steam Egg Poachers, ₩ doz, No. 1, $6.00; No. 2, $9.00..... .....25%
Silver & Co., 6-Ring.. ₩ doz $4; 5-Ring $2

Pokes, Animal—
Bishop's I. X. L..... ₩ doz $6.00
Bishop's O. K..... ₩ doz $5.25
Bishop's Pioneer..... ₩ doz $3.75
Bishop's American..... ₩ doz $2.75
Eagle, Double Stale..... ₩ doz $5.75
Eagle, Single Stale..... ₩ doz $3.75
Buckeye, Single Stals..... ₩ doz $2.75
Bo ding ..... ₩ doz $5.00

Police Goods.
R. I. Tool Co., Handcuffs, $15.00 ₩ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₩ doz 10%
Tower's..... .....25%
Daley's Improved Handcuffs, 2 Hands, Polished, ₩ doz $48.00; Nickeled, $57.00· 3 Hands, Polished, ₩ doz $72.00; Nickeled, $84.00..... .....25%
J. P. Lovell's Police Goods..... .....25%

Polish, Metal.
Prestoline..... .....30%
Prestoline Paste..... .....33⅓%
Gaston's Silver Compound..... .....33⅓%

Polish, Stove.
Joseph Dixon's..... ...₩ gro $6.00, 10%
Gem..... ₩ gro $4.50, 10%
Gold Medal..... ₩ gro $6.00, 25%
Mirror..... ₩ pro $5.00, —%
Lustro..... ₩ gro $4.75
Ruby..... ₩ gro $3.75
Rising Sun, 5 gro lots ..... ₩ gro $5.50
Dixon's Plumbago..... ₩ ₺ 8¢
Boynton's Noon Day, ₩ gro 13.00
Parlor Pride Stove Enamel.. ₩ gro
Yates' Liquid, 1 3 5 10 gal....
₩ gal ...$0.80 .70 .60 .50
Yates Standard Paste Polish, 10-₺ cans, ₩ ₺ 12½¢
Jet Black ..... ₩ gro $3.50
Japanese. ..... ₩ gro $3.50
Fireside..... ₩ gro $2.50
Diamond O. K. Enamel.... ₩ gro $19.00
Bonnell's Liquid Stove Polish. ₩ gro $9.00
Bonnell's Paste Stove Polish.. ₩ gro $6.00
Black Eagle Benzine Paste, 5 and 10 ₺ cans ..... 12½¢
Black Jack Water Paste, 5 and 10 ₺ cans ..... 12½¢
Nickel Plate Paste ..... ₩ gro $6.00
Crown Paste ..... ₩ gross, $7.20
Crown Paste, in 5 and 10 ₺ pails ₩ ₺ 12¢
Black Flag ..... ₩ gross, $7.20
Black Flag, 5 and 10 ₺ pails,... ₩ ₺, 12¢
Black Flag, liquid, in bottles, ₩ gro. $8.00
Diamond Rock Nickel Cleaner.. ₩ gro $10.20

Poppers, Corn—
Round or Square, 1 qt.. ₩ gr $10.00@10.50
Round or Square, 1½ qt.. ₩ gr $15@15.50
Round or Square, 2 qt.. ₩ gr $18.50@19.00

Post Hole and Tree Augers and Diggers—See Diggers, Post Hole, &c.

Potato Parers—See Parers, Potato.

Pots.
Glue—
Tinned..... .....40&10@40&10&5%
Enameled..... .....40&10@40&10&5%
Family, Howe's "Eureka"..... .....40%
Family, L. F. C.'s "Handy"..... .....50%

Powder.
In Canisters—
Fine Sporting, 1 ₺ each $0.90
Duck, 1 ₺ each 60
Duck, ½ ₺ each..... 40
Rifle, 1 ₺ each 30
Rifle, ½ ₺ each 18
In Kegs—
Rifle, 25-₺ kegs..... .....$5.50
Rifle, 12½-₺ kegs..... ..... 3.00
Rifle, 6-₺ kegs..... ..... 1.65
Duck, 12½-₺ kegs 5.75
Duck, 6¼-₺ kegs 3.00
Trap, 25-₺ kegs 6.50
Trap, 12½-₺ kegs..... 3.50
Trap, 6¼-₺ kegs..... 1.90

Presses.
Fruit and Jelly—
Enterprise Mfg. Co..... .....20&10@30%
Henis..... ₩ doz $3.50
Shepard's Queen City 40%
Silver & Co.. ..... ₩ doz $2.75

Pruning Hooks and Shears.—See Shears.

Pullers.
Nail.
Scranton ..... ₩ doz $13.00, 33⅓%
Curtiss Hammer..... ₩ doz $9.00
Giant, No. 1..... ₩ doz. $13.00, 10%
Giant, No. 2..... ₩ doz, $15.00, 10%
Pelican..... ₩ doz, $9.00, 25%
Eclipse..... .....each. $2.00 net
Economy ..... ₩ doz $6.00

Pulleys—
Hot House, Awning, &c..... .....60&10%
Japanned Screw..... .....60&10%
Brass Screw..... .....60&10%
Japanned Side..... .....60&10%
Japanned Clothes Line..... .....60&10%
Empire Sash Pulley..... .....55@60%
Moore's Sash, Anti-Friction..... .....50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50..... .....50&10@50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70 ....50%
Hay Fork, "F" Common and Pat. Bushed 20%
Hay Fork, Tarbox Pat. Iron..... .....20%
Hay Fork, Reed's Self-Lubricating ...60%
Shade Rack..... .....45%
Tackle Blocks..... .....See Blocks
Moore's Anti-Friction 5 in. Wheel, ₩ doz $12.00..... .....40%

Pumps—
Cistern, Best Makers ....60@60&10%
Pitcher Spout, Best Makers....67½@70%
Pitcher Spout, Cheaper G'ds..75@75&10%

Punches—
Saddlers' or Drive, good, ₩ doz...60@65¢
Bemis & Call Co.'s Cast Steel Drive..50&5%
Bemis & Call Co's Springfield Socket.50&5%
Spring, good quality....₩ doz $2.50@3.00
Spring, Leach's Pat..... .....15%
Bemis & Call Co.'s Spring and Check. .40%
Solid Tinners', P. S. & W. Co., ₩ doz $1.44, 55%
Tin'rs' Hollow Punches P. S. & W. Co. 30&5%
Rice Hand punches 15%
Avery's Revolving..... .....40%
Avery's Saw-Set and Punch. See Saw Sets.

Rail—
Sliding Door. Wr't Brass, ₩ ₺ 35¢.....15%
Sliding Door, Bronzed Wr't Iron.. ₩ ft. 7¢
Sliding Door, Iron, Painted, ₩ foot 4¢, 40%
Barn Door Light. In. ½ ¾ 1
Per 100 feet ...$2.00 2.50 3.10, 10%
B. D. for N. E. Hangers—

	Small.	Med.	Large.
Per 100 eet ...	$2.15	2.70	3.25 .net

Terry's Steel Rail, ₩ foot..... .....4½¢
Victor Track Rail, 7¢ ₩ foot..... .....50&5%
Carrier, double braced, Steel Rail, ₩ foot..... .....4@4½¢
Moore's Wrought Iron..... .....30¢
Moody Steel Rail..... .....45%
Hooks—
Cast Steel, Association goods...60%&10%
Cast Steel, outside g'ds. 60&10&10@70&5%
Malleable ....70@70&5%
Gibbs Lawn Rake..... ₩ doz $4.90
Canton Lawn Rake..... ₩ doz $3.75
Favorite Lawn Rake..... .....$4.40
Ft. Madison Prize Bow Brace and Peerless ....65¢
Fort Madison Steel Tooth Lawn Rake, $6.00..... .....35¢

Razors—
J. R. Torrey Razor Co 30%
Wostenholme and Butcher, $10 to $..10%
Jordan's AAAI, new list..... .....net
Jordan's Old Faithful, new list..... net
Galvanic ..... ₩ doz $15.60
Electric Cultery Co ....Net

Razor Strops—See Strops, Razor.

Rings and Ringers.
Bull Rings—
Union Nut Co..... .....55%
Sargent's..... .....65%&10@70&5%
Hotchkiss' low list..... .....30%
Humason, Beckley & Co.'s..... .....70&10%
Peck, Stow & W. Co's..50&10@50&10&10%
Ehrich Bdw. Co., White Metal, low list. 50@50&10%
Hog—
Top of the Hill Ringers..... ₩ doz $2.00
Top of the Hill Rings..... ₩ doz $1.38
Hill's Improved Ringers..... ₩ doz $1.38
Hill's Old Style Ringers..... ₩ doz $1.12½
Hill's Tones..... ₩ doz $3.00
Hill's Rings..... ₩ doz bxs $1.00
Perfect Rings..... ₩ doz bxs $1.50
Perfect Ringers..... ₩ doz $2.15@$2.38
Blair's Hog Ringers..... ₩ doz $2.00
Blair's Hog Rings..... ₩ doz $1.00
Champion Ringers..... ₩ doz $2.00
Champion Rings, Double..... ₩ doz $2.38
Brown's Ringers..... ₩ doz $2.00
Brown's Rings..... ₩ doz $1.15@1.38
Electric Hog Rings .... ₩ doz boxes $1.50
Electric Hog Ringers ..... ₩ doz $2.00
Major Rings ..... ₩ doz $1.25
Major Ringers..... ₩ doz $2.00

Rivets and Burrs—
Iron, list Nov. 17, '87..... .....40%
Copper..... .....60&10%
Coppered Iron, Bettina Brand..... .....40%

Rivet Sets—See Sets.

Rods—
Stair, Brass ....35&2%
Stair, Black Walnut ..... ₩ doz 40¢

Rollers—
Barn Door, Sargent's list ....60&10&10%
Acme Moore's Anti-Friction..... .....55%
Union Barn Door Roller 70%
Thompson Mfg. Co.'s Lawn Rollers..30%

Rope.
Manila, 7-16 in. diam. and larger ₩ ₺ 12½¢
Manila ..... ⅜ in. ₩ ₺ 13½¢
Manila..... ¼ and 5-16 in. ₩ ₺ 13½¢
Manila Tarred Rope..... ₩ ₺ 11½¢
Manila, Hay Rope..... ₩ ₺ 12½¢
Sisal.....7-16 inch and larger ₩ ₺ 10½¢
Sisal..... ⅜ in. ₩ ₺ 10¾¢
Sisal..... ¼ and 5-16 in. ₩ ₺ 11½¢
Sisal, Hay Rope..... ₩ ₺ 10½¢
Sisal, Tarred Rope..... ₩ ₺ 9½¢
Sisal, Medium Lath Yarn..... ₩ ₺ 9½¢
New Zealand..½-18 in. & larger ₩ ₺ 8½¢
New Zealand..... ⅜ inch, ₩ ₺ 9½¢
New Zealand, ¼ and 5-16 inch, ₩ ₺ 9½¢
New Zealand, Hay Rope..... ₩ ₺ 8½¢
New Zealand, Tarred Rope..... ₩ ₺ 8½¢
Note.—Manufacturers' prices on above 1¢ ₩ ₺ less, f. o. b. factory—less 1½ % for cash.
Cotton Rope..... ₩ ₺ 13½@16¢
Jute Rope..... ₩ ₺ 6½@7¢
Wire—
List February, 1892.
A 1 kinds 45%

Rules—
Boxwood ....30&10&10%
Ivory..... .....50&10&10%
Starrett's Rules and Straight Edges. Steel..... .....35&10%

Sad Irons—See Irons, Sad.

Sand and Emery Paper and Cloth—See Paper and Cloth, Sand and Emery

Sash Cord—See Cord, Sash.

Sash Locks—See Locks, Sash.

Sash Weights—See Weights, Sash.

Sausage Stuffers or Fillers—See Stuffers or Fillers, Sausage.

Saws—The following prices are often cut by jobbers.
Disston's Circular ....45@45&5%
Disston's Cross Cuts..... .....45@45&5%
Disston's Hand ....20@20&5%
Woodrough & Wetherlin.
Hand, Panel and Rip..... .....25@25&5%
Narrow Champion Cross Cuts with Handles, ₩ foot..... .....18@20¢
Champion Thin Back Cross Cuts, ₩ foot..... .....26@28¢
Champion Extra Thin Back Cross Cuts, ₩ foot..... .....29@31¢
One Man Champion Cross Cuts, ₩ foot..... .....37@40
Wheeler, Madden & Clemson Mfg. Co.
Hand, Panel and Rip. ....3@3&5%
Narrow Champion Cross Cuts with Handles, ₩ foot..... .....18@20¢
Champion Thin Back Cross Cuts, ₩ foot..... .....26@28¢
Champion Extra Thin Back Cross Cuts, ₩ foot..... .....29@31¢
One Man Champion Cross Cuts, ₩ ft.. 37@

Atkins' Circular Shingle & Heading...50%
Atkins' Silver Steel Diamond X Cuts
₩ foot 70¢
Atkins' Special Steel Dexter X Cuts
₩ foot 50¢
Atkins' Special Steel Diamond X Cuts
₩ foot 22½
Atkins' Champion and Electric Tooth X Cuts.....₩ foot 30¢
Atkins' Hollow Back X Cuts. .₩ foot 20¢
Atkins' Mulay, Mill and Drag.....40%
Atkins' One-Man Saw, with handles,
₩ foot 40¢
Peace Circular and Mill.....45@45&5%
Peace Hand Panel and Rip....25@25&5%
Peace Cross Cuts.....45@45&5%
Richardson's Circular and Mill.45@45&5%
Richardson's X Cuts.....45@45&5%
Richardson's Hand, &c.....25@25&5%
C. E. Jennings & Co., Hand, Panel and Rip.....25@25&10%

Hack Saws—

Griffin's, complete.....40&10@50%
Griffin's Hack Saw.....40&10@50%
Star Hack Saws and Blades.....25%
Eureka and Crescent.....25%

Scroll—

Lester, complete, $10.00.....25%
Rogers, complete, $4.00.....25%
Barnes' Builders' and Cab. Makers' $15.25%
Barnes' Scroll Saw Blades.....25%

Saw Frames—See Frames, Saw.
Saw Sets—See Sets, Saw.
Saw Tools—See Tools, Saw.

Scales—

Hatch, Counter, No. 171, good quality,
₩ doz $21.00
Hatch, Tea, No. 161....₩ doz $6.75@37.00
Union Platform, Plain.....$2.10@2.90
Union Platform, Striped.....$2.40@2.50
Chatillon's Grocers' Trip Scales 50%
Chatillon's Eureka.....25%
Chatillon's Favorite.....40%
Family, Turnbulls.....30@30&10%
Richle Bros.' Platform.....40%

Scale Beams—See Beams, Scale

Scissors, Fluting.....45%

Scrapers—

Adjustable Box Scraper (S. R. & L. Co.)
$6.50.....30&10%
Box, 1 Handle.....₩ doz $4.00. 10%
Box, 2 Handle.....₩ doz $6.00. 10%
Defiance Box and Ship.....20&10%
Foot.....50&10@60%
Ship, Common .....₩ doz $3.50 net
Ship, R. I. Tool Co.....10%

Screen Window and Door Frames—See Frames.

Screw Drivers—See Drivers, Screw.

Screws.

Bench and Hand—

Bench, Iron.....55&10@55&10&10%
Bench, Wood, Beech.....₩ doz $2.25
Bench, Wood, Hickory.....20&10%
Hand, Wood .....25&10@25&10&5%
Hand, Grand Rapids, list.....5%
Lag, Blunt Point, list Jan. 1, 1890.75&10%
Coach and Lag, Gimlet Point, list Jan. 1, 1890.....75@75&10%
Bed.....25&5%
Hand Rail, Sargent's.....65%&10%
Hand Rail, R. & F. Mfg. Co...70&10@75%
Hand Rail, Am. Screw Co.....75%
Jack Screws, Millers Falls list..50@50&5%
Jack Screws, P. S. & W.....35%
Jack Screws, Sargent...60&10@60&10&5%
Jack Screws Stearns'.....40@40&10%

Cork—

Humason & Beckley Mfg. Co..40&10@50%
Williamson's.....33⅓@33⅓&5%
Howe Bros & Hulbert.....38%

Machine—

Flat Head, Iron.....55%
Round Head, Iron 50%

Wood—

List January 1, 1891.

Flat Head Iron	70	%
Round Head Iron	65	%
Flat Head Brass	70	%
Round Head Brass	65	%
Flat Head Bronze	70	%
Round Head Bronze	65	%
Rogers' Drive Screws	82½	%

Extra 10 10&10% of-ten given.

Scroll Saws—See Saws, Scroll.

Scythes.

Grain.....40&5@40&10%
Grass.....40&10@50%

Scythe Snaths—See Snaths, Scythe Sets.

Awl and Tool.

Aiken's Sets, Awls and Tools,
No. 20, ₩ doz $10.00 .....55&10%
Fray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9.....35@35&10%
Miller's Falls Adj. Tool Hdls.,
Nos. 1, $12, 2, $18.....25%
Henry's Combination Haft...₩ doz $6.50
Stanley's Excelsior:
No. 1, $7.50; No. 2, $4.00; No. 3, $5.50.....30&10%
Common Brad Sets,
No. 43, $10.50; No. 43, $12.50..70&10&5%

Nail—

Square.....₩ gr., $4 00@$4.25
Round.....₩ gr. $3.25
Buck Bros.....27½%
Cannon's Diamond Point...₩ gr.,$12, 20%

Rivet,

Regular list.....50&10%

Saw—

Stillman's Genuine...₩ doz $5.00@7.75, 40&5%
Stillman's Pattern, Hand, ₩ doz $3.25; Cross Cut, 5.25.....45@50%
Common Lever ...₩ doz $2.00, 45@50%
Morrill's No. 1, $12 00 .....40@40&5%
No 11, $15 00....4 %&10@42½ %
No 1, 2 and 4, $18 00.....40&5%
No. 0, $24.00 .....40&5%
Leach's. No. 0, $5 00; No. 1, $10, 15@20%
Nash's .....20&10@20&10&10%
Hammer, Hotchkiss.....$5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. 30&5%
Bemis & Call Co.'s Lever and Spring Hammer.....30&5%
Bemis & Call Co.'s Plate.....10%
Bemis & Call Co.'s Cross Cut 12½%
Aiken's Genuine.....$18.00, 50&10@60%
Aiken's Imitation.....$7.00, 55&5%
Hart's Pat. Lever.....20%
Disston's Star. 25%
Leopold.....40&10@50%
Atkin's Lever.....₩ doz No. 1, $6.00
Atkin's Criterion.....₩ doz No. 1, $6.00
Croissant (Keller), No. 1, $15.00; No. 2, $24.00.....40&10%
Avery's Saw Set and Punch.....50%
Chieftain Co.'s Superior.....₩ doz $7.00
Chieftain Co.'s Royal.....₩ doz $7.50
Crescent .....₩ doz $3.00
Lloyd's Acme.....₩ doz $15.00, 40&10%

Sharpeners, Knife.

arkins.
Applewood Handles....₩ doz $6.00, 40%
Rosewood or Cocobo a. ₩ doz $900 40%

Shaves, Spoke

Iron.....45%
Wood.....30%
Bailey's (Stanley R. & L. Co.).....40&10%
Stearns'.....30&10%
Cincinnati .....25&10%
Goodell's, ₩ doz $9.00.....25%

Shears—

American (Cast) Iron...75&10@75&10&5%
Barnard's Lamp Trimmers...₩ doz $3.75
Tinners'.....20&2%
Seymour's, List, Dec., 1881.
60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881.
60&10&10@60&10&10&5%
Heinisch's Tailor's Shears.....33⅓&5
Cast Steel Trimmers:
First quality .....30@30&10%
Second quality .....30&10@30&10&10%
Acme Cast Shears.....10&10%
Diamond Cast Shears.....10%
Clipper.....10&10%
Victor Cast Shears...75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel.....40%
Chicago Drop Forge & F. Co., Solid Steel Forged.....60%
Davenport Cutlery Co.....60@60&10%
Clauss Shear Co., Japanned.....70%
Clauss Shear Co., Nickeled, same list. 60%
Galvanic, 3¼ to 9 in, ₩ doz, $1.00 ₩ inch
Electric Cultery Co.....Net

Pruning Shears and Hooks.

Disston's Combined Pruning Hook and Saw.....₩ doz $18.00, 20&10%
Disston's Pruning Hook, ₩ doz $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools.....40%
Pruning Shears, Henry's Pat, ₩ doz $3.75@4.00
Henry's Pruning Shears, ₩ doz $4.25@4.50
Wheeler, M. & C. Co.'s Combination, ₩ doz $12.00, 20%
Dunlap's Saw and Chisel, ₩ doz $5.50, 20%
J. Mallinson & Co., No. 1, $5.25; No. 2 7.25
P. S. & W. Co.....60%

Tinners', &c.—

Shears and Snips (P. S. & W.).....20@25%
Snips, J. Mallinson & Co.....33⅓&5

Sheaves—

Sliding Door—

M. W. Co., list July, 1888..50&10@60&5%
R. & E., list Dec. 13, 1885.....55&20%
Corbin's list.....60&10&2%
Patent Roller.....60&10&2%
Patent Roller, Hatfield's.....75%
Russell's Anti-Friction, list Dec. 13, 1885.....60&2%
Moore's Anti-Friction.....50%

Sliding Shutter—

R. & E. list Dec. 13, 1885.....60&10&2%
Sargent's list.....60&10%
Reading list.....60&10&10%

Shells—

First quality 4, 8, 10 and 12 gauge 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list).....30&10&2%
Paragon.....40&2%
Star, Club, Rival and Climax brands, 33⅓&10&2%
Selbold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax.. 65&2%

Shells Loaded—

Standard List, July 19, 1890.....40&10&10@40&10&10&5%

Ship Tools—

L. & I. J. White.....30&5%

Shoes, Horse, Mule, &c.—

Horse—

Burden's, Perkins', Phœnix and Bryden's Boss, at factory. $4.00
Bryden's Frog Pressure, at factory.$5.00

Mule—

Add $1 ₩ keg to above prices.

Ox, Wrought—

Ton lots.....₩ ₺ 9¢
1000 ₺ lots.....₩ ₺ 9½¢
500 ₺ lots.....₩ ₺ 10¢

Shot—

	Ton lots	Small lots
Drop, up to B, 25-₺ bag	$1.35	$1.40
Drop, up to B, 5-₺ bag	.35	.35
Drop, B and larger, 25-₺ bag	1.60	1.65
Drop, B and larger 5-₺ bag	.40	.40
Buck and Chilled, 25-₺ bag	1.60	1.65
Buck and Chilled, 5-₺ bag	.40	.40
Dust Shot, 25-₺ bag	2.00	2.00
Dust Shot, 5-₺ bag	.45	.45

Shovels and Spades—

Ames' Shovels, Spades, &c., list Nov. 1, 1885.....20%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron.....50&10%
Griffith's C. S.....60@60&10%
Griffith's Solid C. S. R. R. Goods.....20%
St. Louis Shovel Co.....20@20&7½%
Hussey, Binns & Co.....15@25%
Hubbard & Co.....20@20&7½%
Lehigh Mfg. Co.....50&10%
H. M. Myers Co.....30 %
Payne Pettebone & Son.....33⅓&5%
Remington's (Lowman's Pat.)30&10@40%
Rowland's, Black Iron.....50&10%
Rowland's Steel .....60&5@60&10%
Terre Haute Shovel and Tool Co.....25%

Shovels and Tongs—

Iron Head.....60&10@60&10&5%
Brass Head.....60&10&10%

Sieves—

Mann's Tin Rim.....50&25%
Buffalo Metallic, S. S. & Co.....50&25%
Shaker (Barler's Pat.) Flour Sifters, ₩ doz $2.00; ₩ gr $21.60
Electric.....₩ gr $21.00
A. & W. Sifters.....₩ doz 2.00
Hunter's.....₩ doz $2.00

Sieves, Wooden Rim—

	Iron.	Plated
Mesh 18, Nested, ₩ doz..	80¢	$1.00
Mesh 20, Nested, ₩ doz..	95¢	1.10
Mesh 24, Nested, ₩ doz..	$1.15	1.25

Skeins, Thimble—

Western list.....75&25@75&10%
Columbus Wrt. Steel..Special net prices
Coldbrookdale Iron Co.....60%
Seneca Falls Pattern.....60%
Utica P. S. T. Skeins.....60%
Utica Turned and Fitted.....35%

Slates—

School, by case.....50&10@50&10&10%

Snaps, Harness, &c.—

Anchor (T. & S. Mfg. Co.).....65%
Fitch's (Bristol).....50&10%
Hotchkiss.....10%
Andrews.....50%
Sargent's Patent Guarded.....70&10&10%
German, new list.....40&10%
Covert.....50&10&5&2%
Covert, New Patent.....50&10&5&2%
Covert, New R. E.....60&10&5&2%
Covered Spring.....60&10&10%
E. Covert's Triumph.....33⅓%

Snaths, Scythe.

List.....50@50&5%

Soldering Irons—See Irons, Soldering.

Spittoons, Cuspidors, &c.

Standard Fiberware—

Cuspidors, 8¼-inch, ₩ doz., No. 5, $8; No. 6X $9.
Spittoons, Daisy, 8-inch, No. 1, $4; 10 and 11 inch, $6.

Spoke Shaves—See Shaves, Spoke.

Spoke Trimmers—See Trimmers, Spoke.

Spoons and Forks—

Tinned Iron—

Basting, Cen. Stamp. Co.'s list....70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list.....70&10%
Buffalo S. S. & Co.....33⅓&2%

Silver-Plated—(4 mos. or 5% cash 30 days).

Meriden Brit. Co., Rogers.....40&15%
C. Rogers & Bros.....40&15%
Rogers & Bro.....40&15%
Reed & Barton.....40@40&5%
Wm. Rogers Mfg. Co.....40, 15&5%
Simpson, Hall, Miller & Co.....40, 15&5%
Holmes & Edwards Silver Co...40, 15&5%
L. Boardman & Son.....50&12½&5

Miscellaneous.

Holmes & Edwards Silver Co.:

No. 67 Mexican Silver	50&10&5%
No. 90 Silver Metal	50&10&5%
No. 24 German Silver	50&10&5%
No. 50 Nickel Silver	50&5%
No. 49 Nickel Silver	50&10&5%

Wm. Rogers Mfg. Co.:

Rogers' Silver Metal	50, 10&5%
18% Rogers' German Silver	60&5%
22% Rogers' Nickel Silver	50&5%

German Silver.....50@50&5
German Silver, Hall & Elton..50&5% cash
Nickel Silver.....50&5@50&10&5% cash
Britannia.....60@60&5%
Boardman's N'ck'l Silver, list July 1, 1891.....60&7½&2%
Boardman's Britannia Spoons, case lots.....60&5% cash

Springs—

Door.—

Torrey's Rod, 39 in....₩ doz $1.20@1.25
Gray's, ₩ gr., $20.00.....25%
Bee Rod ₩ gr., $20.00.....20@25%
Warner's No. 1, ₩ doz, $2.50; No. 2, $3.30.....50@50&5%
Gem (Coil), list April 19, 1886.... 10@15%
Star (Coil), list April 19, 1886...20@20&5%
Victor (Coil).....60&10@60&10&5%
Champion (Coil).....60&10@60&10&10%
Cowell's....No. 1, ₩ doz, $18.00; No. 2, $15.00.....50@50&10%
Rubber, complete, ₩ doz, $4.50...55&10%
Hercules.....50@50&10%

Carriage, Wagon, &c.—

Elliptic, Concord, Platform and Half Scroll.....60&10&10%
Cliff's Bolster Springs.....25%

Squares—

Steel and Iron.....
Nickel-Plated.....
} .80&10@80&10&10%
Try Square and T Bevels...60&10@60&10&10%
Disston's Try Square and T Bevels.....50%
Winterbottom's Try and Miter....30&10%
Starrett's Micrometer Caliper Squares. 25%
Avery's Flush Bevel Squares.....40%
Avery's Bevel Protractor 50%

Squeezers.

Fodder.—

Blair's.....₩ doz $2.00
Blair's "Climax".....₩ doz $1.25

Lemon—

Porcelain Lined, No. 1....₩ doz $6.00, 25&20%
Wood, No. 2.....₩ doz $3.00, 35%
Wood, Common.....₩ doz $1.70@1.75
Dunlap's Improved .....₩ doz $3.75, 20%
Sammis....No. 1, $5.00; No. 2, $9; 12, $18 ₩ doz.....25&10%
Jennings' Star.....₩ doz $2.50
The Boss.....₩ doz $2.50
Dean's..Nos. 1, ₩ doz $6.50; 2, $3.35; 3, $1.90; Queen, $2.50
Little Giant.....50@50&5%
King.....40&5%
Hotchkiss Straight Flash....₩ doz $12.00
Silver & Co., Glass.....₩ gro. $9.00
Manny Lemon Juice Extractor:
Standard.....₩ doz $0.75@$1.00
Improved.....₩ doz $2.00

Standard Fiber Ware—See Ware, Standard Fiber.

Staples.

Blind—

Barbed, ½ in. and larger.....₩ ₺ 7@7½¢
Barbed, ¼ in.....₩ ₺ 8@8½¢
Fence Staples, Galvanized. } Same price as B'rb Wire.
Fence Staples, Plain..... } See Trd. Rep.

Steelyards.....40&10@50%

Stocks and Dies—

Blacksmith's
Waterford Goods.....33⅓@40%
Butterfield's Goods.....33⅓@40%
Lightning Screw Plate.....25@30%
Reece's New Screw Plates....33⅓&5&40%
Reversible Ratchet.....50
Gardner.....25%

Stops, Bench.

Morrill's.....₩ doz $2.50
Hotchkiss'.....₩ doz $5 10@10&10%
Weston's, No. 1, $10; No. 2, $9.25&10&5%
McGill's.....₩ doz $3.....10%
Cincinnati .....25&10%
Terrell's Nos. 1 and 2, ₩ doz., $3; No. 3, $3.60 .....30%

Stone—

Scythe Stones.

Pike Mfg. Co., Ill Ap ll, 1892 ...28½%

Oil Stones, &c.

Pike Mfg. C :	Price ₩ ₺
Hindosta. No 1	8¢
ead Stone	5¢
Washita Stone Extra	60¢
Washita Stone, No	40¢
Washita Stone No	30¢
Washita Slips, Extra	80¢
Washita Slips, No.	60¢

Dis. 40 @ 40&10%

Arkansas Stone, No. 1, 3 to 5½ in. $2.80
Arkansas Stone, No. 1, 5½ to 8 in. $3.60
Turkey Oil Stone, 4 to 8 in .....80¢
Turkey Slips.....$1.00
Lake Superior, Chase.....₩ ₺ .85
Lake Superior Slips, Chase... ₩ ₺ 20¢

Stove Polish—See Polish, Stove

Stretchers, Carpet.

Cast Steel, Polished.....₩ doz $2.25
Cast Iron, Steel Points.....₩ doz 80¢
Socket.....₩ doz $1.75
Gullard's.....25@25&10%

Strops, Razor—

Genuine Emerson.....60@60&5%
Imitation " ....₩ doz $2.00, 20&10&5%
Torrey's.....20%
Badger's Belt and Com.....₩ doz $2.00
Lamont Combination.....₩ doz $4.00
Jordan's Pat. Padded, list Nov. 1, '89.50%
Electric Cultery Co.....Net

Stuffers or Fillers, Sausage—

Miles' "Challenge," ₩ doz $20, 50@50&5%
Perry .....₩ doz, No. 1, $15.00; No. 0, $21.00.....50&5@50&10%
Draw Cut No. 4, each $20.00.....20%
Enterprise Mfg. Co.....20&10@20%
Silver's.....40&10%

Sweepers, Carpet and Lawn—

Carpet.

Bissell No. 0.....₩ doz $ .00
Bissell No. 8.....₩ doz $20.00
Bissell, Grand.....₩ doz $36.00
Standard.....₩ doz $24.00
Domestic .....₩ doz $21.00
Domestic, No. 2.....₩ doz $24.00
Grand Rapids.....₩ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic.....₩ doz $15.00
Improved Parlor Queen, Nickeled.....₩ doz $27.00
Japanned.....₩ doz $24.00
Excelsior .....₩ doz $23.00
Garland .....₩ doz $15.00
Parlor Queen.....₩ doz $24.00
Housewife's Delight.....₩ doz $15.00
Queen.....₩ doz $16.00
Queen, with band.....₩ doz $18.00
King .....₩ doz $20.00
Weed, Improved.....₩ doz $18.00
Hub.....₩ doz $16.00
Cog-Wheel.....₩ doz $16.00
Easy.....₩ doz $22.00
Monarch.....₩ doz $22.00
Goshen.....₩ doz $21.00
Ladies' Friend.....₩ doz $15.00
Advance.....₩ doz $18.00
Supreme.....₩ doz $22.00

Lawn.

Thompson Mfg Co.....30%

Tacks, Brads, &c.—

List October 19, 1889. Old established straight Weights Short Weight goods are sold at lower prices.

Carpet Tacks—
American, Blued.....72½%
American, Tin'd and Cop'd ..70%
Steel, Bright and Blued....73½%
Steel, Tinned and Coppered 75%
Swedes Iron, Blued.....75%
Swedes Iron, Tinned.....73%
American Iron Tacks.....74½%
Swedes Iron Tacks—
S. S., Blued.....71%
S. S., Tinned.....74%
Lanc., Blued.....60%
Lanc., Tinned.....63½%
Gimp and Lace Tacks—
S. S., Blued.....67½%
S. S., Tinned.....71%
Lanc., Blued.....60%
Lanc., Tinned.....63½%
Basket and Trimmers' Tacks—
Lanc.....61½%
S. S.....69½%
Hungarian Nails.....63½%
Common and Patent Brads...6 %
Leathered Tacks.....30%
Brush Tacks.....63½%
Looking Glass Tacks.....35%
Picture-Frame Points.....43½%
Finishing Nails.....63½%
Trunk and Clout Nails—
Black.....67½%
Tinned or Coppered.....71%
Basket Nails 61½%
Chair Nails.....56½%
Cigar-Box Nails.....65%
Tin Capped Nails.....50%

Extra discount 25&2%

Miscellaneous—

D'ble-Point, 120 count55&10@55&10&10%
Double Point, 100 count.....90%
Wire Carpet Nails .....50&10%
Plymouth Rock Steel Carpet Tacks..35%
Wire Brads and Nails, see Nails, Wire.
Steel-Wire Brads, H. & M. Mfg. Co.'s list .....50&10%

Tapes, Measuring—

American.....40@40&5%
Spring.....40%
Chesterman's, Regular list.....35@30%

Thermometers—

Tin Case.....30@30&10%

Thimble Skeins—See Skeins.

Ties, Bale—See Standard Wire, list.....50&10&5%

Tinners' Shears, &c.—See Shears Tinners', &c

Tinware—
Stamped, Japanned and Pieced, list Jan. 20 1887.....70&10@70&25%

Tire Benders, Upsetters, &c—
See Benders and Upsetters, Tire.

Tools.
Coopers'—
Bradley's.....20%
Barton's.....20@20&5%
L. & I. J. White.....20&5%
Albertson Mfg. Co.....25%
Beatty's.....80%
Sandusky Tool Co.....30@30&5%
Shaves, Cincinnati Tool Co.....20%

Lumber.
Ring Peavies, "Blue Line"...₩ doz $20.00
Ring Peavies, Common.....₩ doz $18.00
Steel Socket Peavies.....₩ doz $21.00
Mall. Iron Socket Peavies.....₩ doz $19.00
Cant Hooks, "Blue Line"..₩ doz $16.00
Cant Hooks, Common Finish..₩ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.....₩ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish.....₩ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.....₩ doz $13.00
Hand Spikes....₩ doz 6 ft., $15.00; 8 ft., $20.00

Pike Poles, Pike & Hook, ₩ doz., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₩ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $14.00; 20 ft., $20.00.
Pike Poles, not ironed, ₩ doz, 12 ft. $8.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₩ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks.....₩ doz $13.00

Saw.
Atkins' Perfection.....₩ doz $12.00
Atkins' Excelsior.....₩ doz $6.00
Atkins' Giant.....₩ doz $4.00

Tobacco Cutters—See Cutters, Tobacco.

Transom Lifters — See Lifters, Transom.

Traps—
Game—
Newhouse.....40@40&5%
Oneida Pattern.....70&10%
Game, Blake's Patent.....40&10&5%
Mouse and Rat—
Mouse Wood, Choker, ₩ doz holes, 9@10¢
Mouse, Round Wire.....₩ doz $1.50 10%
Mouse, Cage, Wire.....₩ doz $2.50, 10%
Mouse, Catch-'em-alive....₩ ds $2.50' 15%
Mouse, Bonanza.....₩ doz $0.90@$1.00
Rat, Decoy.....₩ gr $10.00, 10%
Ideal.....₩ gr $10.00
Cyclone.....₩ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ₩ doz., 75¢; in full cases, ₩ doz 60@65¢
Hotchkiss Imp. Rat Killer..₩ gro $18.50
Hotchkiss New Rat Killer...₩ gro $16.50
Schuyler's Rat Killer.....₩ gro $18.00

Triers—
Butter and cheese.....35%

Trimmers, Spoke.
Bonney's.....₩ doz $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ₩ doz. 55&10%
Douglas'.....₩ doz $9.00, 20%
Cincinnati.....20%

Trowels—
Lothrop's Brick and Plastering.....20&10&5@35%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering..25@25&5%
Peace's Plastering.....25@.5&5%
Clement & Maynard's.....20@30&5%
Rose's Brick.....15@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garvien.....70%
Cleves' Angle Trowel.₩ gro.$15, net @10%

Trucks, Warehouse, &c.—
R. & L. Block Co.'s list, '92.....40%
Thompson Mfg. Co.....25%

Tubes, Boiler—
See Pipe.

Twine—

Flax Twine—	BC.	R.
No. 9, ¼ and ½ ℔ Balls	25¢	31¢
No. 12, ¼ and ½ ℔ Balls	25¢	30¢
No. 15, ¼ and ½ ℔ Balls	30¢	29¢
No. 24, ¼ and ½ ℔ Balls	20¢	29¢
No. 36, ¼ and ½ ℔ Balls	18¢	28¢

No. 204, Mattress, ¼ and ½ ℔ Balls.52@54¢
Chalk Line, Cotton, ½ ℔ Balls.....25¢
Mason Line, Linen, ½ ℔ Balls.....55¢
2-Ply Hemp, ¼ and ½ ℔ Balls (Spring Twine).....15¢¢
3-Ply Hemp, 1 ℔ Balls.....16@16½¢
3-Ply Hemp, 1½ ℔ Balls.....15@15½¢
Cotton Wrapping, 5 Balls to ℔..15@16¢
2, 3, 4 and 6-Ply Jute, ½ ℔ Balls.....10¢
Wool.....6½@6¾¢
Paper.....13@14¢
Cotton Mops, 6, 9, 12 and 15 ℔ to doz..15¢

Vises—
Solid Box.....50&10@50&10&5%
Parallel—
Fisher & Norris Double Screw.....15&10%
Stephens'.....25@30%
Parker's.....30@35%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@30%
Sargent's.....60&10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....30%
Massey Quick Action.....30 @ 25 %
Saw Fliers—
Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....32½&10@33½&10&10%
Stearn's Silent Saw Vises.....33½@35%
Sargent's.....60%&10%
Hopkins'.....₩ doz $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%
Miscellaneous.
Combination Hand Vises.....₩ gr $42.00
Cowell Hand Vises.....30%
Bauer's Pipe Vises.....10%
Cincinnati.....35&10%
Enterprise Pipe Vises, each.....$3.00
Massey Combination Pipe.....40 %

Wads—Price per M.

J.M.C.&W.R.A.—B.E., 11 up...	68¢
J.M.C.&W.R.A.—B.E., 9@10...	82¢
J.M.C.&W.R.A.—B.E., 8.....	96¢
U.M.C.& W.R.A.—B.E., 7.....	$1.10
U.M.C.&W.R.A.—P.E., 11 up..	1.15
U.M.C.&W.R.A.—P.E., 9@10..	1.50
U.M.C.&W.R.A.—P.E., 8.....	1.70
U.M.C.&W.R.A.—P.E., 7.....	1.80
Eley's B.E., 11 up.....$1.70@$1.75	
Eley's P.E., 11@10.....	2.00@ 2.25

Dis. 50&5

Wagon Boxes—See Boxes, Wagon.

Washer Cutters—See Cutters Washer.

Wagon Jacks—See Jacks, Wagon.

Ware, Hollow, Enameled, &c.
Cast Iron, Hollow—
Stove Hollow-Ware—
Ground.....60&10%
Unground.....60&10&10%
White Enameled-Ware—
Maslin Kettles.....75@75&5%
Boilers and Saucepans.....60@60&5%
Tinned Boilers and S'pans.....60@60&5%
Rustless Hollow-Ware.....50@50&5%
Gray Enameled-Ware—
Stove.....50%
Maslin Kettles.....60&10&10%
Boilers and Saucepans.....40@5%
Enameled—
Agate and Granite Ware, list Jan. 1, 1889.....33½&10%
Ironclad Enameled Ware...dis 33½&10%
Kettles—
Galvanized Tea-Kettles—

Inch....	6	7	8	9
Each....	55¢	60¢		75¢

Standard Fiber—

	Per Dozen. Plain.	Dec'r'd
Wash-Basins, 10½ in.....	$2.00	$2.25
Wash-Basins, 12 in.....	2.25	2.75
Keelers, 11¼ in.....		4.00
Cuspidors.....		3.00
Spittoons, "Daisy," 8 in....	4.00	4.50
Peck Measure.....	4.00	
Half-peck Measure.....	3.50	

See also Pails.
Indurated Fiber—25%
Spittoons, No. 2, ₩ doz.....$3.40
Basins, Ringed, ₩ doz., No. 2.....$3.00
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₩ nest.....$7.50
Keelers Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₩ nest.....$2.90
Butter Bowls 15, 17 and 19-inch (3 pieces), ₩ nest.....$1.70
Liquid Measures, pt., qt., 2 qt. and funnell (4 pieces) ₩ set.....$1.60
See also Pails.
Silver Plated, Hollow—
4 mo. or 5 % cash in 30 days.
Reed & Barton.....
Meriden Britannia Co.....
Simpson, Hall, Miller & Co.....
Rogers & Brother.....
Hartford Silver Plate Co.....
William Rogers Mfg. Co.....
} 40&5%

Washers—

Size hole.....	5-16	⅜	½	⅝ to 1¼
Washers.....	6	5	3.50¢	3

In lots less than 200 ℔, ₩ ℔, add ¼¢, 5-℔ boxes 1¢ to list.

Wedges—
Iron.....₩ ℔ 5½¢
Steel.....₩ ℔ 9½¢

Weights, Sash—
Solid Eyes.....₩ ton $18@$19

Well Buckets, Galvanized—See Buckets, Well, Galvanized.

Wheels, Well.
8 in., $2.25; 10 in., $2.70; 12 in., $3.38

Wire and Wire Goods—
Iron—
Market,
Br. & Ann., Nos. 0 to 18.. 75&10@80%
Cop'd, Nos. 0 to 18.....75&5@75&10%
Galv., Nos. 0 to 18.....70@70&10
Tin'd, Tin'd list Nos. 0 to 18.70@70&10%
Stone,
Br. and Ann'd, Nos. 16 to 18.....80%
Bright and Ann'd, Nos. 19 to 26..80&5%
Br. and Ann'd, Nos. 27 to 36...83½&5%
Tinned.....
Tinned Broom Wire 18 to 21, ₩ ℔...4½¢
Galvanized Fence, Nos. 8 and 9..70&10%
Brass, list Jan. 18, 1884.....25@33⅓%
Copper, list Jan. 18, 1884.....33⅓@40%
Annealed Wire on Spools.....60%
Malin's Steel and Tin'd on Spools.....50%
Malin's Brass and Cop. on Spools.....50%
Tate's Spooled, Tin'd & Annealed..60&5%
Tate's Spooled Cop. and Brass.....50%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to $.30%
Steel Music Wire, 12 to 30...60@70¢ ₩ ℔
Wire Clothes Lines, see Lines.
Wire Picture Cord see cord.

Bright Wire Goods—
Standard list.....35%

Wire Cloth and Netting.
Painted Screen Cloth, good quality ₩ 100 sq. ft., $1.40
Galvanized Wire Netting.....70&10&75%

Wire, Barb.—Prices unsettled. See Trade Report.

Wire Rope—See Rope, Wire.

Wrenches—
American Adjustable.....40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....40&10@50%
Coes' Genuine.....50&25%
Coes' "Mechanics".....50&10&2%
Girard Standard.....65&10%
Lamson & Sessions' Engineers'..60&10%
Lamson & Sessions' Standard.....70&10%
P. S. & W. Agricultural.....
Girard Agricultural.....
Lamson & Sessions' Agricl..
} 75&10@ 75&10&10%
Bemis & Call's
Pat. Combination.....25%
Merrick's Pattern.....25%
Brigg's Pattern.....25%
Cylinder or Gas Pipe.....40&10%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$5.00, 50&10%
The Favorite Pocket.....₩ doz $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....30&10%
Always Ready.....35&25%
Alligator.....50%
Donohue's Engineer.....30&10%
Acme, Bright.....50&25%
Acme, Nickeled.....40&25%
Hercules.....70@70&5%
Walker's.....
Diamond Steel.....55&25%
Cincinnati Brace Wrenches.....35&10%
Tafts' Vise Wrench.....55&10&25%

Wringers, Clothes—
Am Wringer Co.'s list, July 15, 91..2% cash
Colby Wringer Co., list Sept. 1, '91.2% cash
Lovell Mfg Co., list Jan 1, 1892.2 % cash
Peerless Mfg. Co., list Feb., 1892..2% cash

Wrought Goods—
Staples, Hooks, &c., list March 17, 1892, 50&25%

PAINTS, OILS AND COLORS.—Wholesale Prices.

Animal and Vegetable Oils.

Linseed, City, raw..per gal.	42	@	..
Linseed, City, boiled.....	45	@	..
Linseed, Western, raw.....	41	@	..
Lard, City, Extra Winter..	57	@	58
Lard, City, Prime.....	56	@	57
Lard, City, Extra No. 1.....	44	@	45
Lard, City, No. 1	40	@	42
Lard, Western, prime.....	55	@	56
Cotton-seed, Crude, prime.	29½	@	..
Cotton-seed, Crude, off grades.....	26½	@	28
Cotton-seed, Summer Yellow, prime.....	32½	@	..
Cotton-seed, Summer Yellow, off grades.....	30	@	31
Sperm, Crude.....	68	@	..
Sperm, Natural Spring.....	67	@	70
Sperm, Bleached Spring....	72	@	75
Sperm, Natural Winter.....	73	@	76
Sperm, Bleached Winter...	78	@	81
Whale, Crude.....	..	@	45
Whale, Natural Winter.....	54	@	55
Whale, Bleached Winter...	57	@	58
Whale, Extra Bleached...	59	@	60
Sea Elephant, Bleached Winter	62	@	63
Menhaden, Crude, Sound...	..	@	31
Menhaden, Crude, Southern	..	@	..
Menhaden, Light Pressed..	37	@	..
Menhaden, Bleached W'ter.	38	@	..
Menhaden, Extra Bleached	40	@	42
Tallow, City, prime.....	44	@	45
Tallow, Western, prime....	42½	@	43
Cocoanut, Ceylon.....	5½	@	5¾
Cocoanut, Cochin.....	6	@	6¼
Cod, Domestic	38	@	40
Cod, Foreign.....	43	@	45
Red Elaine	34	@	36
Red Saponified.....₩ ℔	4½	@	5
Bank.....per gal	35	@	36
Straits.....	36	@	37
Olive, Italian, bbls.....	60	@	62
Neatsfoot, prime	50	@	60
Palm, prime, Lagos....₩ ℔	6	@	6¼

Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test.....per gal	7	@	7½
Black, 29 gravity, 15 cold test.....	7½	@	8
Black, 29 gravity, summer.	6	@	6¼
Cylinder light filtered. ...	14	@	16
Cylinder, dark, filtered	10	@	13
Paraffine, 23¾ @ 24 gravity.	11½	@	12
Paraffine, 25 gravity.....	10½	@	11
Paraffine, 28 gravity.....	8	@	8½
Paraffine, red, 23½@24 gr'ty	10½	@	11

Paints and Colors.

Barytes, Foreign, ₩ ton.	$23.00	@	$24.00
Barytes, Amer. floated...	20.00	@	25.00
Barytes, Amer. No. 1....	15.00	@	17.00
Barytes, Amer. No. 2.....	13.00	@	16.00
Barytes, Amer., No. 3....	11.00	@	12.00
Blue, Celestial..... ₩ ℔	6	@	8
Blue, Chinese	40	@	50
Blue Prussian.....	25	@	40
Blue, Ultramarine	8	@	25
Brown, Spanish	½@		1
Brown, Vandyke, Amer..	3	@	3½
Brown, Vandyke, English	6	@	8
Carmine, No. 40, in bulk.	3.10	@	..
Carmine, No. 40, in boxes or barrels	3.20	@	..
Carmine, No. 40, in ounce bottles.....	4.20	@	..
Chalk, in bulk.... ₩ ton.	1.75	@	2.00
Chalk, in bbls.. ₩ 100 ℔.	33	@	40
China Clay, English..... ₩ ton.	13.00	@	18.00
Cobalt Oxide, prep'd....	9.00	@	11.00
Cobalt Oxide, black..... lots 100 ℔	2.50	@	....
Cobalt, Oxide, black..... less 100 ℔	2.65	@	2.90
Green, Paris, in bulk....	13	@	15½
Green, Paris, 170 @ 175 ₩ kegs.....	14	@	16
Green, Paris, small pack.	15½	@	22
Green, Chrome, ordinary	6	@	12
Green, Chrome, pure....	22	@	25
Lead, Eng., B.B. white....	8½@		10
Lead, Amn. White, dry or in oil: Kegs, lots less than 500 ℔...	7¼	@	7½
Kegs, lots 500 ℔ to 5 tons....	6¾	@	7
Kegs, lots 5 tons to 12 tons..	6¾	@	6¾
Kegs, lots 12 tons and over..	6½	@	6¾
Lead White in oil 25 ℔ tin pails add to keg price.....		@	⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price		@	¼
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price.		@	2¼
Lead, Red, bbls. and ½ bbls....	6¼	@	7¼
Lead Red, kegs.....	6¾	@	7¼
Litharge, kegs.....	6¼	@	7½
Litharge, bbls. and ½ bbls.....	6¼	@	7¼

Terms, &c.—Lead and Litharge.—On lots of 500 ℔ or over, 60 days' time or 2½ % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle.....	1.35	@	1½
Ocher, French Washed.....	1½@		2½
Ocher, German Washed...	1½@		3
Ocher, American.....	½@		1½
Orange Mineral, English...	8½@		9
Orange Mineral, French....	10	@	10½
Orange Mineral, German ..	8½@		09
Orange Mineral, American..	6½@		8½
Paris White, English Cliffstone.....	1.00	@	1.15
Paris White, American.....	70	@	75
Red, Indian, English.....	5½@		7
Red, Indian, American....	2	@	6½
Red, Turkey.....	9	@	14
Red, Tuscan	9	@	11
Red, Venetian, American.. ₩ 100 ℔.	1.00	@	1.10
Red, Venetian, English....	1.20	@	1.35
Sienna, Italian, Burnt and Powd. ₩ ℔	4	@	5
Sienna, Ital., Burnt Lumps	1½@		3½
Sienna, Ital., Raw, Powd..	1½@		3½
Sienna, Ital., Raw Lumps..	1½@		3½
Sienna, American, Raw....	1½@		1¾
Sienna, American, Burnt and Powdered.....	1½@		1¾
Talc, French	1½@		1¾
Talc, American.....	0½@		1¾
Terra Alba, Fr'ch. ₩ 100 ℔	75	@	80
Terra Alba, English	70	@	75
Terra Alba, American No.1	70	@	75
Terra Alba, American No.2	45	@	50
Umber, Turkey, Bat. and Powd. ₩ ℔	3½@		4
Umber, Turkey Bat. Lm	2½@		3
Umber, Turkey, Raw and Powdered.....	3½@		
Umber Turkey, R'w Lmps	2½@		3½
Umber, Turkey, But. Amer.	1½@		1½
Umber, Turkey, R'w Amer.	1½@		1¾
Yellow, Chrome.....	10	@	25
Vermilion Americ. Lead..	11½@		12
Vermilion, Quicks'er, bulk.	57	@	..
Vermilion, Quicks'er, bags.	58	@	..
Vermilion Quicksilver, smaller pkgs	62	@	..
Vermilion English Import	85	@	90
Vermilion, Imitation, Eng.	8	@	35
Vermilion, Trieste....	90	@	92½
Vermilion, Chinese.....	92½@		96
Whiting Common. ₩ 100 ℔	35	@	45
Whiting, Gliders'.....	50	@	60
Zinc, American, dry.... ₩ ℔	4½@		5
Zinc, French, Red Seal....	..	@	5¼
Zinc, French, Green Seal..	..	@	5½
Zinc, French, V. M. X.....	..	@	7
Zinc, Antwerp, Red Seal...	..	@	7¼
Zinc, Antwerp, Green Seal	..	@	8½
Zinc, German, L. Z. O....	..	@	6½
Zinc, V M. in Poppy Oil, G. Seal, lots of 1 ton and over.....	10½@		11¼
lots less than 1 ton	11	@	11¾
Zinc, V. M. in Poppy Oil, Red Seal.....	..	@	..
lots of 1 ton and over....	10	@	10½
Lots of less than 1 ton....	10½@		10¾

Discounts.—French Zinc.—Discounts to buyers of 10- bbl. lots of one or assorted grades, 1 %; 25 bbls, 2 %, 50 bbls, 4 %. No discount allowed on less than bbl. lots.

Colors in Oil.

Black, Drop, Frankfort	25	@	30
Black, Drop, English.....	12	@	15
Black, Drop, Dom stic	7	@	10
Black, Lamplack, Best	30	@	35
Black, Lampblack, Common	7	@	13
Black, Ivory.....	8	@	15
Blue, Chinese.....	35	@	40
Blue, Prussian.....	30	@	45
Blue, Ultramar.ine.....	12	@	13
Brown, Vandyke.....	7	@	12
Green, Chrome.....	8	@	13
Green, Paris.....	16	@	18½
Sienna, Raw.....	7	@	14
Sienna, Burnt.....	7	@	14
Umber Raw.....	7	@	10
Umber, Burnt	7	@	10

Putty.

In barrels and ½ bbls....	.01½@		.01¾
In tubs.....	.01¾@		.01¾
In tin cans.....	.01¾@		.02¼
In bladders.....	.01¾@		.02½

Spirits Turpentine.

In regular bbls.....	30	@	..
In machine bbls.....	30½@		..

Glue.

Low Grade.....₩ ℔	8	@	10
Cabinet.....	12	@	14
Medium White.....	13	@	15
Extra White.....	17	@	20
French	19	@	22
English.....	10	@	15
Irish.....	10	@	

CURRENT METAL PRICES.

JUNE 8, 1892.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL.

Bar Iron from Store.

Common Iron:	
¾ to 2 in. round and square.. 1 to 6 in. x ⅝ to 1 in....	₩ lb 1.90 @ 2.00¢
Refined Iron:	
¾ to 2 in. round and square. 1 to 4 in. x ⅝ to 1½ in.... 4½ to 6 in. x ⅝ to 1 in. 1 to 6 in. x ¼ and 5-16.	₩ lb 2.00 @ 2.10¢
	₩ lb 2.20 @ 2.30¢
Rods—⅝ and 11-16 round and sq.	₩ lb 2.10 @ 2.20¢
Bands—1 to 6 x 3-16 to No. 12	₩ lb 2.30 @ 2.40¢
"Burden Best" Iron, base price.	₩ lb 3.00¢
Burden's "H. B. & S." Iron, base price	₩ lb 2.80¢
"Ulster"	₩ lb 3.00¢
Norway Bars	3.75 @ 4.00¢
Norway Shapes	4.50 @ 5.00¢

Merchant Steel from Store.

	Per pound
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots	2¾¢
Best Cast Steel, base price in small lots.	8 ¢
Best Cast Steel Machinery, base price in small lots	5 ¢

Sheet Iron from Store.

Black.

	Common American.	R. G. Cleaned American.
Nos. 10 to 16	₩ lb 3 @	3⅝¢
17 to 20	₩ lb 3½ @	3⅝¢
21 to 24	₩ lb 3¾ @	3⅝¢
25 and 26	₩ lb 3⅝ @	3¾¢
27	₩ lb 3¾ @	3¾¢
28	₩ lb 3⅞ @	4 ¢
American B. B.	₩ lb 4¢ @	4¼¢

Galvanized Sheet Iron.

	R. R.	2d qual
Nos. 10 to 16	₩ lb 4.20¢	4 ¢
17 to 22	₩ lb 4.60¢	4.30¢
23 to 24	₩ lb 4 90¢	4.70¢
25 to 26	₩ lb 5.30¢	5 ¢
27	₩ lb 5.60¢	5.30¢
28	₩ lb 6 ¢	5.70¢
29 to 30	₩ lb 7 ¢	6.70¢
Genuine Russia, according to assortment	₩ lb 11¼¢ @	11¾¢
Patent Planished	₩ lb A, 10¢; B, 9¢	
Craig Polished Sheet Steel	₩ lb, 8¾¢	

English Steel from Store.

Best Cast	₩ lb 15 ¢
Extra Cast	₩ lb 16½ @ 17 ¢
Swaged. Cast	₩ lb 16 ¢
Best Double Shear	₩ lb 15 ¢
Blister, 1st quality	₩ lb 12 ¢
German Steel, Best	₩ lb 10 ¢
2d quality	₩ lb 9 ¢
3d quality	₩ lb 8 ¢
Sheet Cast Steel, 1st quality	₩ lb 15 ¢
2d quality	₩ lb 14 ¢
3d quality	₩ lb 12½¢
R. Mushet's "Special"	₩ lb 48 ¢
" " "Titanic"	₩ lb 20 ¢

METALS.

Tin.

	Per lb
Banca, Pigs	23¼ @ ..¢
Straits, Pigs	23 @ ..¢
Straits in Bars	24 @ 25¢

Tin Plates.

Duty: 2.2 cents per pound.

Charcoal Plates.—Bright.

Guaranteed Plates command special prices, according to quality. Per box.

Melyn and Calland Grade.	IC, 10	x14..	@ $6.50
" " "	IC, 12	x12..	@ 6.75
" " "	IC, 14	x20..	@ 6.50
" " "	IC, 20	x28..	@ 13.00
" " "	IX, 10	x14..	@ 8.50
" " "	IX, 12	x12..	@ 8.75
" " "	IX, 14	x20..	@ 8.50
" " "	IX, 20	x28..	@ 17.00
" " "	DC, 12½	x17..	@ 6.00
" " "	DX 12½	x17..	@ 8.00
Allaway Grade	IC, 10	x14..	@ 6.00
" "	IC, 12	x12..	@ 6.25
" "	IC, 14	x20..	@ 6.00
" "	IC, 20	x28..	@ 12.00
" "	IX, 10	x14..	@ 7.50
" "	IX, 12	x12..	@ 7.75
" "	IX, 14	x20..	@ 7.50
" "	IX, 20	x28..	@ 15.00
" "	DC, 12½	x17..	@ 5.50
" "	DX, 12½	x17..	@ 7.00

Coke Plates.—Bright.

Steel Coke.—IC, 10 x 14, 14 x 20..		$5.70	@ $5.75
	10 x 20..		@ 8.50
	20 x 28..	11.50	@ 12 00
IX, 10 x 14, 14 x 20..			@ 7.00
BV Grade.—IC, 10 x 14, 14 x 20..			@ 5.75

Charcoal Plates.—Terne.

Guaranteed Plates command special prices according to quality.

Dean Grade.—IC, 14 x 20		@ $5.75
20 x 28		@ 11.00
IX, 14 x 20		@ 6 50
20 x 28		@ 13 00
Abecarne Grade.—IC, 14 x 20		@ 5 65
20 x 28	10.75	@ 11 00
IX 14 x 20		@ 6 50
20 x 28		@ 13 00

2¼n Boiler Plates.

IXX, 14 x 26	112 sheets	@ $13.38
IXX, 14 x 28	112 sheets	@ 14.00
IXX 14 x 31	112 sheets	@ 16.00

Copper.

Duty: Pig, Bar and Ingot, 1¼¢; Old Copper, 1¢ ₩ lb. Manufactured (including all articles of which Copper is a component of chief value), 35 % ad valorem.

Ingot

Lake	@ 13 ¢
Ansonia Grade Arisona	@ 12½¢
Ansonia Grade Casting	@ 12 ¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, December 5, 1890. Subject to a discount of 10 % @ 20 %, according to size of order.

Not wider than	Not longer than	And longer than	Weights per square foot and prices per pound. Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
30	72		22	23	22	23	24	25	28	30
30		72	22	23	22	23	25	27	31	
36	96		22	23	22	24	26	30	33	....
36		96	22	23	23	25	27	31	35	....
48	96		22	23	24	26	28	32	....	....
48		96	22	22	25	27	29	33	....	....
60	96		22	22	27	29	34	....	....	....
60		96	22	23	28	....	....	....	....	....
84	96		23	24	....	....	....	....	....	....
84		96	24	25	....	....	....	....	....	....
Over 84 in. wide			25	27	....	....	....	....	....	....

Bolt Copper, ⅝ inch diameter and over, per pound 22¢

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness

Cold or Hard Rolled Copper 14 oz. ₩ square foot and heavier, 1¢ ₩ lb over the foregoing prices.

Cold or Hard Rolled Copper lighter than 14 oz. ₩ square foot, 2¢ ₩ lb over the foregoing prices.

Copper Bottoms, Pits and Flats.

	Per pound
14 ounce to square foot and heavier	26¢
12 ounce and up to 14 ounce to square foot	27¢
10 ounce and up to 12 ounce	29¢
Lighter than 10 ounce	32¢

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms

10 % @ 20 % discount, according to size of order.

Copper Wash Bowl Bottoms.

Tinned ₩ lb 34¢, 10% @ 20 %

Tinning.

Net.

Tinning sheets on one side, 10, 12 and 14 x 48 each 8¢

Tinning sheets on one side, 30 x 60 each 30¢

For tinning boiler sizes, 9 in. (sheets 14 in. x 60 in.), each 15¢

For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each 12¢

For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each 12¢

Tinning sheets on one side, other sizes, per square foot 2½¢

For tinning both sides double the above prices.

Planished Brass and Copper.

Not larger than 30 x 60.

16 oz. and heavier	24¢ ₩ lb
14 oz.	25¢ ₩ lb
12 oz.	27¢ ₩ lb

Seamless Brass Tubes.

Net.

Dec. 16, 1891.

O. G.	N. G.	⅜	½	⅝	¾	⅞	1	1⅛
8-14	6-12	30	26	23	22	21	20	17
15	13	31	26	24	23	22	21	18
16	14	32	27	25	24	23	22	18
17	15	33	28	26	25	24	23	19
18	16	35	29	27	25	24	23	20
19	17	36	30	28	27	26	25	22
20	18-19	37	32	30	29	28	27	24
21	20	39	34	32	31	30	29	27
22	21	41	35	34	32	31	30	29
23	22	43	37	35	34	33	32	32
24	23	46	39	37	36	34	33	34
25	24	49	42	39	38	37	36	38

Copper Tubes, 3¢ ₩ lb additional.

Copper Bronze and Gliding Tube, 3¢ ₩ lb additional.

Brazed Brass Tubing To No. 20, inclusive.

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch	45¢
Plain, 5-16 inch	45¢
Plain, ¼ inch	60¢
Plain, 5-16 inch	$1.05
Plain, ⅛ inch	1.50
Fancy Tubing, Brass, to No. 20, inclusive	45¢ ₩ lb
Bronze Tubing, 3¢ ₩ lb more than Brass.	
Discount from list	30 @ ..%

Roll and Sheet Brass.

(Brown & Sharpe Standard Gauge.)

Common High Brass: Wider than and including	in. 2	in. 10	in. 12	in. 14	in. 16	in. 18	in. 20	in. 22	in. 24
To No. 20, inclusive	.21	.22	.23	.25	.27	.29	.31	.32	
Nos. 21, 22, 23 and 24	.23	.23	.24	.26	.28	.30	.32	.34	
Nos. 25 and 26	.22½	.23¼	.24½	.27	.29	.31	.33	.32	
Nos. 27 and 28	.33	.24	.25	.28	.30	.33	.34	.36	

Common High Brass: Wider than and including	in. 24 26	in. 26 28	in. 28 30	in. 30 32	in. 32 34	in. 34 36	in. 36 38	in. 38 40
To No. 20, inclusive	.36	.39	.42	.46	.50	.55	.60	.65
Nos. 21, 22, 23 and 24	.37	.40	.43	.47	.51	.56	.61	.68
Nos. 25 and 26	.38	.41	.44	.48	.52	.57	.63	.71
Nos. 27 and 28	.39	.42	.45	.49	.53	.58	.66	.76

Discount from List 10 % to 25 %.

Brass and Copper Wire.

List January 17, 1884.

Numbered by Stubs' gauge.	Soft & hard high brass.	Spring high brass.	Low brass.	Copper.
All Nos. to No. 16, inclusive	$0.22	$0.24	$0 26	$0.30
No. 17 and No. 18	.23	.25	.27	.31
No. 19 " " 20	.24	.26	.28	.32
No. 21, or 0.032 diam.	.25	.27	.29	.33

Discount 10 % to 25 %.

Fine Numbers.

Numbered by London gauge.	Brass.	Spring high brass.	Low brass.	Copper.
No. 22	$0.26	$0.28	$0.30	$0.34
No. 23	.28	.30	.32	.36
No. 24	.30	.32	.34	.38
No. 25	.32	.34	.36	.40
No. 26	.35	.37	.39	.43
No. 27	.38	.40	.42	.46
No. 28	.42	.44	.46	.51
No. 29	.45	.47	.49	.54
No. 30	.48	.50	.52	.62
No. 31	.51	.53	.55	.67
No. 32	.55	.57	.59	.73
No. 33	.59	.61	.63	.82
No. 34	.64	.66	.68	.95
No. 35	.70	.72	.74	1.30
No. 36	.78	.78	.80	1.50
No. 37	1.00	1.02	1.04	1.70
No. 38	1.30	1.32	1.34	2.00
No. 39	2.00	2.02	2.00	2.25
No. 40	2.60	2.62	2.60	5.75

— % discount.

Spring Wire, 2¢ ₩ lb advance.

Copper Belt and Hose Rivets and Burrs.

	Per lb.		Per lb.
No. 5	49¢	No. 11	56¢
No. 6	49¢	No. 12	58¢
No. 7	49¢	No. 13	60¢
No. 8	50¢	No. 14	63¢
No. 9	52¢	No 15	70¢
No 10	54¢		

60 % @ 5 % discount.

Tobin Bronze—Rods.

Drawn Rods for Bolts, Forgings, &c.

¼ to ⅜ inch inclusive	18¢ ₩ lb
Over ⅜ to 3½ inches inclusive	17¢ ₩ lb
Over 3½ to 5 inches inclusive	18¢ ₩ lb
Piston Rods, Finished True, Smooth and Straight.	
¼ to ⅜ inch inclusive	19¢ ₩ lb
Over ⅜ to 2 inches inclusive	18¢ ₩ lb
Over 2 to 3½ inches inclusive	19¢ ₩ lb
Over 3½ to 5 inches inclusive	21¢ ₩ lb

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 lb.

Western Spelter	5¼¢
Bertha (pure)	8¼¢

Zinc.

Duty; Sheet, 2½¢ ₩ lb.

600 lb casks	6½¢
Per lb	7 ¢

Lead.

Duty: Pig, $2 ₩ 100 lb. Old Lead, 2¢ ₩ lb. Pipe and Sheets 2½¢ ₩ lb.

American Pig	4½¢ @ ..
Bar	5 ¢
Pipe, subject to discount 20 %	6½¢
Tin-Lined Pipe, subject to discount 20 %	15¢
Block Tin Pipes, subject to discount 20 %	37½¢
Sheet subject to discount 20 %	7¢

Old Lead in exchange, 3 ¼ ₩ lb.

Solder.

½ @ ½ (Guaranteed)	13¾¢
No. 1	11¼¢ @ 11¾¢
Extra Wiping	12 ¢ @ 12½¢

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson	₩ lb 15½ @ ..
Hallett's	" @ 12½¢

ALUMINUM.

Prices Per Ton.

Duty: 15 cents per pound.

Over 98 % pure	₩ lb .75
94 % @ 98 % pure	₩ lb .65

Old Metals.

Prices Paid in New York.

Heavy Copper	₩ lb 10 ¢
Light Copper	₩ lb 9 ¢
Heavy Brass	₩ lb 7 ¢
Light Brass	₩ lb 6 ¢
Lead	₩ lb 3½¢
Tea Lead	₩ lb 3½¢
Zinc	₩ lb 2½¢
No. 1 Pewter	₩ lb 14 ¢
No 2 Pewter	₩ lb 7 ¢
Wrought Scrap Iron	₩ gross ton $17.00
Heavy Cast Scrap	₩ gross ton 10.00
Stove Plate Scrap	₩ gross ton 7.00
Burnt Iron	₩ gross ton 5.00